HALA | **CITY OF SEATTLE**
Office of Planning & Community Development

CITYWIDE IMPLEMENTATION OF MANDATORY HOUSING AFFORDABILITY (MHA)

Draft Environmental Impact Statement

June 8, 2017

CITY OF SEATTLE
Office of Planning & Community Development

for the

City of Seattle Citywide Implementation of Mandatory Housing Affordability (MHA) Draft Environmental Impact Statement

Date of Draft EIS Issuance

June 8, 2017

Date Comments are Due on the Draft EIS

July 23, 2017

Date of Draft EIS Open House and Hearing

June 29, 2017

**Seattle
Office of Planning &
Community Development**

Edward B. Murray, Mayor │ Samuel Assefa, Director

600 4th Ave, Floor 5
P.O. Box 94788
Seattle, WA 98124-7088

June 8, 2017

Dear Neighbors:

The City of Seattle invites your review of this Draft Environmental Impact Statement (DEIS) that examines the potential effects of zoning changes necessary to implement Mandatory Housing Affordability (MHA). The area studied includes multifamily residential and commercial zones in Seattle, areas currently zoned Single Family Residential in existing urban villages, and urban village expansion areas that were identified in the Seattle 2035 Comprehensive Plan.

Implementing MHA is one of many actions the City is proposing to address housing affordability. It is a key recommendation of the Housing Affordability and Livability Agenda (HALA) Advisory Committee. In 2015 and 2016, the Mayor proposed the ordinances that established the framework for MHA, which the City Council adopted unanimously.

MHA helps ensure that as Seattle grows, development supports housing affordability. Development would comply with MHA by either providing affordable housing on-site or paying into a fund to support the creation and preservation of affordable housing throughout Seattle. To put MHA in place, the City would grant additional development capacity through area-wide zoning changes and modifications to the Land Use Code.

The EIS evaluates two action alternatives for implementing MHA with differing distributions and patterns of zoning changes, as well as a no action alternative that would not implement MHA. The Draft EIS identifies environmental impacts and mitigation measures for each alternative. The public comment period for this Draft EIS continues through July 23, 2017. You can learn more and provide your feedback at: http://tinyurl.com/HALA-MHA-EIS. Following the Draft EIS comment period, a Final EIS will be prepared that addresses comments received.

Thank you for your interest in Seattle's effort to implement Mandatory Housing Affordability. We welcome your comments.

Sincerely,

Samuel Assefa
Director

FACT SHEET.

PROJECT TITLE

City of Seattle Mandatory Housing Affordability (MHA)

PROPOSED ACTION AND ALTERNATIVES

The proposal addressed in this Draft Environmental Impact Statement (EIS) is to implement Mandatory Housing Affordability (MHA) requirements for multifamily residential and commercial development in certain areas of Seattle. Implementing MHA is one of many actions the City proposes to address housing affordability. To put MHA in place, the City would grant additional development capacity through area-wide zoning changes and modifications to the Land Use Code. The proposed action includes several related components:

- Adopt requirements in the Land Use Code (SMC Chapter 23) for developers either to build affordable housing on-site or to make an in-lieu payment to support the development of rent- and income-restricted housing when constructing new development meeting certain thresholds.

- Modify development standards in the Land Use Code to provide additional development capacity, such as increases in maximum height and floor area ratio (FAR) limits.

- Make area-wide zoning map changes.

- Expand the boundaries of certain urban villages on the Comprehensive Plan's Future Land Use Map (FLUM) near high-frequency transit, as studied in the Seattle 2035 Comprehensive Plan.

- Modify certain rezone criteria in the Land Use Code.

The Draft EIS evaluates alternative approaches to implementing MHA. Alternative 1 No Action assumes that MHA is not implemented in the study area, no development capacity increases or area-wide rezones would be adopted, and no urban village boundaries would expand.

The action alternatives (Alternatives 2 and 3) would allow for additional development capacity, which may lead to additional household or job growth compared to the growth that would otherwise occur. The total amounts of growth and MHA income restricted affordable housing is similar between Alternative 2 and 3. However, Alternatives 2 and 3 differ in the intensity and location of development capacity increases and the patterns and amounts of housing and job growth that could result across the city. The size of urban village boundary expansions for different urban villages also varies between Alternatives 2 and 3.

LOCATION

The project location is existing multifamily and commercial zones in Seattle, areas currently zoned Single Family in existing urban villages, and areas zoned Single Family in potential urban village expansion areas identified in the Seattle 2035 Comprehensive Planning process. The study area does not include the Downtown, South Lake Union, and Uptown Urban Centers or the portion of University Community Urban Center addressed in the University District Urban Design Framework.

PROPONENT

City of Seattle

DATE OF IMPLEMENTATION

First Quarter 2018

LEAD AGENCY

City of Seattle Office of Planning and Community Development

RESPONSIBLE SEPA OFFICIAL

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REQUIRED APPROVALS

The City Council must approve the proposed rezones, Land Use Code text amendments, and MHA requirements.

PRINCIPAL EIS AUTHORS AND PRINCIPAL CONTRIBUTORS

This Draft EIS has been prepared under the direction of the City of Seattle Office of Planning and Community Development. The following consulting firms provided research and analysis associated with this EIS:

- **3 Square Blocks LLP:** lead EIS consultant
- **BERK:** environmental analysis of housing and socioeconomics, land use, and aesthetics and document design
- **Fehr & Peers:** environmental analysis of transportation, circulation, and parking
- **ESA:** environmental analysis of historic resources, biological resources, parks and open space, public services and utilities, and air quality and greenhouse gas emissions
- **Weinman Consulting LLC:** review and advise on the description of the proposal, alternatives, and SEPA compliance and strategy

DATE OF DRAFT ENVIRONMENTAL IMPACT STATEMENT ISSUANCE

June 8, 2017

DATE COMMENTS ARE DUE

5pm, July 23, 2017

Please submit comments using the online form on the project website:
tinyurl.com/MHAEIScomment

Or submit comments to:

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City of Seattle Office of Planning and Community Development
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PO Box 94788
Seattle, WA 98124-7088
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DATE AND LOCATION OF DRAFT EIS OPEN HOUSE AND HEARING

June 29, 2017

Time: Open House, 5:30 pm | Hearing, 6:30 pm
Location: Seattle City Hall Bertha Night Landes Room
600 4th Avenue, Floor 1
Seattle, WA 98124-7088

TYPE AND TIMING OF SUBSEQUENT ENVIRONMENTAL REVIEW

No environmental review of the proposed ordinance is anticipated subsequent to the environmental review contained in this EIS.

LOCATION OF BACKGROUND DATA

Geoff Wentlandt

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PO Box 94788

Seattle, WA 98124-7088

206.684.3586

DRAFT EIS AVAILABILITY AND PURCHASE PRICE

Copies of this Draft EIS have been distributed to agencies, organizations, and individuals as established in SMC 25.05. Notice of Availability of the Draft EIS has been provided to organizations and individuals that requested to become parties of record.

The Draft EIS can be reviewed at the following public libraries:

- Seattle Public Library—Central Library (1000 4th Avenue)

A limited number of complimentary copies of this Draft EIS are available—while the supply lasts—either as a CD or hardcopy from the Seattle Department of Construction and Inspections Public Resource Center, located in Suite 2000, 700 5th Avenue, in downtown Seattle. Additional copies may be purchased at the Public Resource Center for the cost of reproduction.

This Draft EIS and the appendices are also available online at: http://tinyurl.com/HALA-MHA-EIS

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1

SUMMARY.

This chapter summarizes the findings of this Environmental Impacts Statement (EIS) with respect to environmental impacts, mitigations measures, and significant unavoidable adverse impacts for three alternatives for the proposed action to implement Mandatory Housing Affordability (MHA) in the study area. This summary provides a brief overview of the information considered in this EIS. The reader should consult Chapter 2 for more information on the alternatives and Chapter 3 for more information on the affected environment, environmental impacts, and mitigation measures for each alternative and element of the environment.

1.1   PROPOSAL

The City of Seattle seeks to address a pressing need for housing, especially affordable housing, experienced by households and residents across the income spectrum. The need for affordable housing is well documented and can be measured in many ways. More than 45,000 of Seattle households, or about one in seven, currently pay more than half of their income on housing, a condition referred to as severe cost burden. Average rent for a one-bedroom apartment has increased 35 percent over the last five years and is unaffordable by conventional measures to a worker earning a $15 minimum wage. Affordable housing is further out of reach for certain populations. Nearly 35 percent of Black/African American renter households in Seattle pay more than half of their income on housing, compared to about 18 percent of White renter households. The City is pursuing numerous strategies to address Seattle's housing affordability challenge.

The proposal addressed in this Draft EIS is to implement MHA requirements for multifamily residential and commercial development in certain areas of Seattle. To put MHA in place, the City would grant

additional development capacity through area-wide zoning changes and modifications to the Land Use Code. The proposed action includes several related components:

- Adopt requirements in the Land Use Code (SMC Chapter 23) for developers either to build affordable housing on-site or to make an in-lieu payment to support the development of rent- and income-restricted housing when constructing new development meeting certain thresholds.

- Modify development standards in the Land Use Code to provide additional development capacity, such as increases in maximum height and floor area ratio (FAR) limits.

- Make area-wide zoning map changes.

- Expand the boundaries of certain urban villages on the Comprehensive Plan's Future Land Use Map (FLUM) near high-frequency transit, as studied in the Seattle 2035 Comprehensive Plan.

- Modify certain rezone criteria in the Land Use Code.

Additional development capacity would allow for the construction of more floor area, more housing units, or greater building height and scale compared to what existing regulations allow. In turn, this additional capacity may lead to additional household or job growth compared to the growth that would otherwise occur. Although it brings many benefits to a city, household and job growth can also have impacts to elements of the environment, such as services, transportation, and parks and open space. This Draft EIS evaluates potential environmental impacts associated with alternative approaches to implementing MHA.

STUDY AREA

The study area for this EIS includes existing multifamily and commercial zones in Seattle, areas currently zoned Single Family Residential in existing urban villages, and areas zoned Single Family Residential in potential urban village expansion areas identified in the Seattle 2035 Comprehensive Planning process. The study area does not include the Downtown, South Lake Union, and Uptown Urban Centers; in each of these sub-areas a separate planning process has implemented or will implement increases in development capacity and MHA requirements with its own independent SEPA analysis. The study area also excludes the portion of University Community Urban Center addressed in the University District Urban Design Framework and EIS. A map of the study area is in Exhibit 2–1.

1.2 OBJECTIVES OF THE PROPOSAL

The City's objectives for this proposal are to:

- Address the pressing need for housing affordable and available to a broad range of households.
- Increase overall production of housing to help meet current and projected high demand.
- Leverage development to create at least 6,200 net new rent- and income-restricted housing units serving households at 60 percent[1] of the area median income (AMI) in the study area over a 20-year period.
- Distribute the benefits and burdens of growth equitably.

1.3 PLANNING CONTEXT

SEATTLE 2035 COMPREHENSIVE PLAN

In October 2016, the City Council adopted the Seattle 2035 Comprehensive Plan, a major update to the prior Comprehensive Plan. The City prepared an EIS on the Comprehensive Plan update that evaluated potential environmental impacts of alternative distributions of housing and job growth. The Final EIS was released on May 5, 2016, and, consistent with the provisions of the State Environmental Policy Act (SEPA), is formally adopted in this EIS to provide current and relevant environmental information. The Seattle 2035 Final EIS identified a significant unavoidable adverse housing impact, stating that Seattle would continue to face a housing affordability challenge under all of the growth alternatives studied. The proposed MHA program evaluated in this EIS is one action the city is studying to partially mitigate the housing affordability challenge.

The Seattle 2035 Comprehensive Plan and EIS provide key context for the MHA proposed action, and this EIS builds on the prior analysis. The MHA EIS uses the same 2035 planning horizon as the Seattle 2035 Comprehensive Plan and EIS. The No Action alternative in this MHA EIS closely parallels the preferred alternative of the Seattle 2035 Comprehensive Plan Final EIS. The environmental analysis of the Action

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1 The majority of MHA rent-restricted affordable units will serve the 60% AMI level, however some small studio units will serve 40% AMI, and some home-ownership units may serve households up to the 80% AMI level.

Alternatives for MHA implementation in this EIS study the potential for housing and job growth that is greater than the estimates adopted in the Seattle 2035 plan. These larger growth amounts are similar to the increment of additional growth that was studied in a 'sensitivity analysis' in the Seattle 2035 Final EIS, which also studied additional growth in anticipation of potential future strong demand for housing.

GROWTH AND EQUITY ANALYSIS

City policies call for reducing racial and social disparities, achieving equity through growth, and conducting equity analyses before taking policy actions. As a companion document to the Seattle 2035 EIS, the City prepared a Growth and Equity Analysis to identify how growth could benefit or burden marginalized populations (Appendix A). The MHA EIS strives to meet these policy objectives by integrating consideration of the Growth and Equity Analysis into the formation and the analysis of the alternatives studied. (See Chapter 2 and Appendix A for more information on the Growth and Equity Analysis).

The Growth and Equity Analysis considered people and places. The findings are expressed as the Displacement Risk Index and the Access to Opportunity Index. The Displacement Risk Index identifies areas of Seattle where displacement of marginalized populations may be more likely to occur. The Access to Opportunity Index identifies populations' access to certain key determinants of social, economic, and physical well-being. Together, these indices show that displacement risk varies across Seattle neighborhoods, and key determinants of well-being are not equitably distributed, leaving many marginalized populations without access to factors necessary to succeed and thrive in life.

Urban villages are categorized into four types based on the Growth and Equity Analysis, as listed in Exhibit 1–1. The EIS action alternatives summarize the potential impacts and environmental benefits for these four categories of urban villages.

MANDATORY HOUSING AFFORDABILITY (MHA) FRAMEWORK

The Seattle Municipal Code (SMC) Chapters 23.58.B and 23.58.C already contains an adopted framework for MHA affordable housing requirements. These codes establish many basic MHA program parameters and regulations, such as the income qualifications and duration of affordable housing term. However, MHA does not apply anywhere unless and until the City Council adopts legislation for zoning

Exhibit 1–1 Urban Village and Center by Displacement Risk and Access to Opportunity Typology

	Study Area Urban Village or Urban Center	
High Displacement Risk and Low Access to Opportunity	• Rainier Beach • Othello • Westwood-Highland Park	• South Park • Bitter Lake Village
Low Displacement Risk and High Access to Opportunity	• Green Lake • Roosevelt • Wallingford • Upper Queen Anne • Fremont • Ballard • Ravenna	• Madison-Miller • Greenwood-Phinney Ridge • Eastlake • Admiral • West Seattle Junction • Crown Hill
High Displacement Risk and High Access to Opportunity	• Columbia City • Lake City • Northgate • First Hill-Capitol Hill	• North Beacon Hill • North Rainier • 23rd & Union–Jackson
Low Displacement Risk and Low Access to Opportunity	• Aurora–Licton Springs • Morgan Junction	

Source: City of Seattle, 2017.

changes to increase development capacity. Both action alternatives reflect the program elements of MHA already established by code.

Developers would comply with MHA by either providing affordable housing on-site (performance option) or paying into a fund that the Office of Housing (OH) uses to support the creation and preservation of affordable housing throughout Seattle (payment option). Overall, if implemented in the study area MHA would require from 5 percent to 11 percent of housing built to be income-restricted affordable in the performance option, or would require payments ranging from $7.00 to $32.75 per square foot for residential development for the payment option.

MHA requirements would vary based on geographic areas of the city, and the scale of the zoning change. Higher MHA requirements would apply in strong market areas, and lower MHA requirements in weaker market areas. Larger development capacity increases (i.e., bigger zoning changes) would also result in higher affordable housing requirements. The scale of the zoning change and amount of the MHA requirement would be indicated by an (M), (M1), or (M2) suffix at the end of the zone title. These suffixes (M), (M1), and (M2) tiers would be an indication of the degree of the MHA change in an area, with larger changes for (M1) tier capacity increases, and the largest degree of change in areas of (M2) capacity increases.

1.4   ALTERNATIVES

The City has identified three alternatives. None is formally proposed or preferred at this time. Modified alternatives and/or a preferred alternative may be identified in the Final EIS.

ALTERNATIVE 1 NO ACTION

Alternative 1 assumes that MHA is not implemented in the study area; no development capacity increases or area-wide rezones would be adopted, and there would be no urban village boundary expansions. Overall growth would be similar to the scenario described in the adopted Seattle 2035 Comprehensive Plan.

ACTION ALTERNATIVES

Alternatives 2 and 3 both assume implementation of MHA to achieve the stated objectives. The total amounts of growth and MHA income restricted affordable housing is similar between Alternative 2 and 3. However, Alternatives 2 and 3 differ in the intensity and location of development capacity increases and the patterns and amounts of housing and job growth across the city that could result. The size of urban village boundary expansions for different urban villages also varies between Alternative 2 and 3. Each action alternative is associated with a detailed zoning map and a set of urban village boundary expansions (See Appendix H).

The location and intensity of zone changes, and the urban village boundary expansions varies between Alternatives 2 and 3 based on different approaches to the urban village displacement risk and access opportunity types. The intent is to test whether and how the policy objective of growing equitably is achieved by directing more growth to areas of opportunity, and moderating growth in areas at high risk of displacement, as well as measuring other potential environmental impacts associated with the amount and location of additional growth.

Alternative 2

Alternative 2 implements MHA, applying specific zoning map changes based on a set of basic planning concepts, policies in the Comprehensive Plan, and MHA Implementation Principles developed during community engagement. However, it does not specifically consider risk of displacement or access to opportunity when allocating development capacity increases to individual urban villages. Under Alternative 2, incrementally greater density of housing and employment would occur in the same overall pattern and proportions identified in the Seattle 2035 Comprehensive Plan.

Alternative 3

Alternative 3 uses the same guiding concepts but allocates more or less development capacity based on each urban village's relative level of displacement risk and access to opportunity, as identified in the Growth and Equity Analysis. The overall pattern and distribution of growth in Alternative 3 also follows the Urban Village and Centers growth strategy. Under Alternative 2 incrementally greater density of housing and employment would occur within the same overall pattern of the Seattle 2035 Comprehensive Plan.
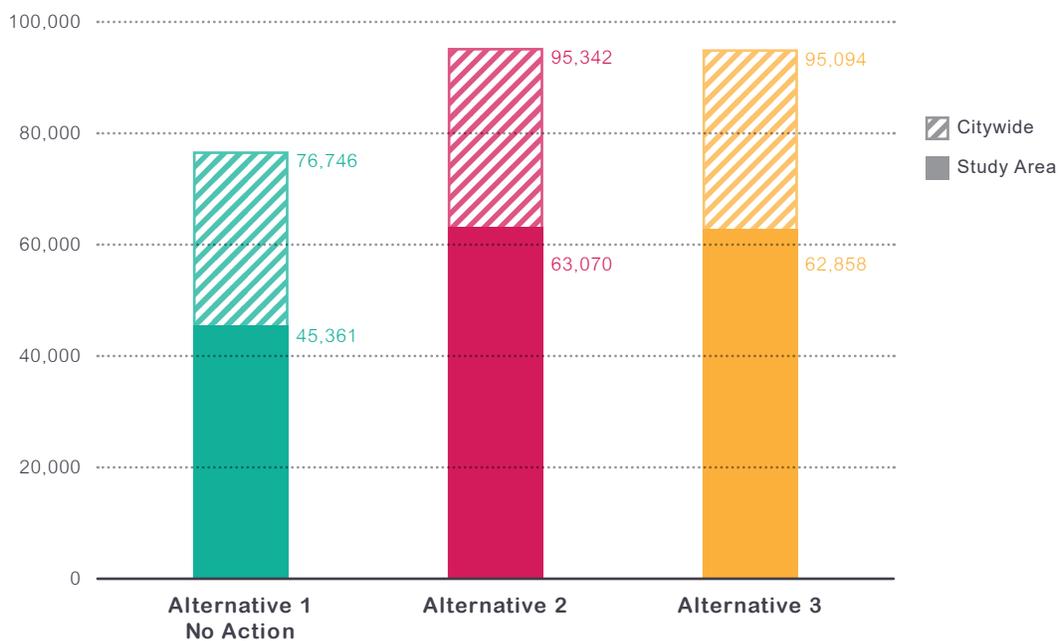
Exhibit 1–2   Total Household Growth, 20 Years

Source: City of Seattle, 2017.
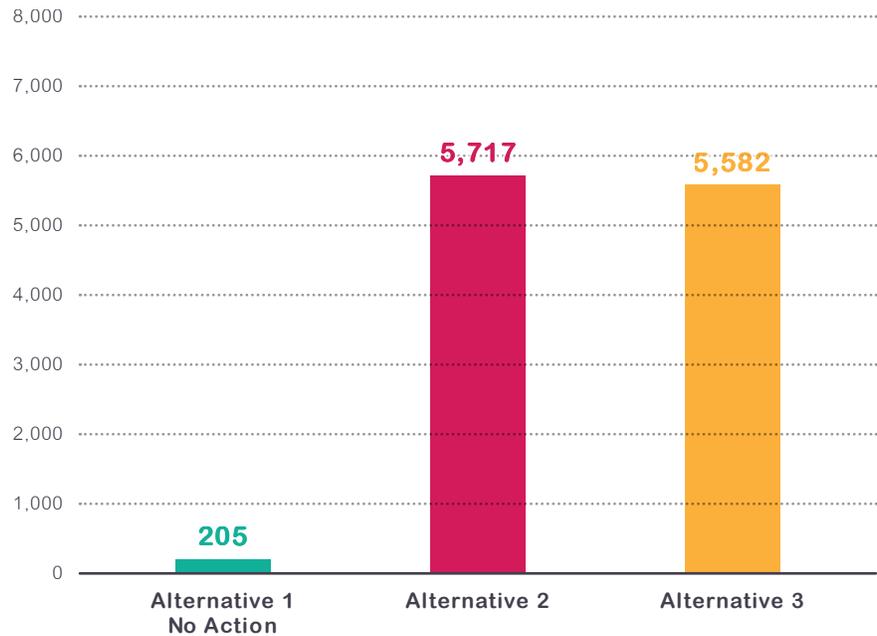
Exhibit 1–3   Income-Restricted Affordable Housing Units
Generated from Study Area, 20 Years

Source: City of Seattle, 2017.

The amount of commercial development and resulting job growth would also vary between the Alternatives. Under No Action, 51,734 additional jobs are expected over 20 years, which would increase to 59,786 and 59,496 in Alternative 2 and Alternative 3 respectively.

The number of new income-restricted affordable housing units that would be generated by development in the study area under each alternative study is estimated. "Generated" describes MHA or IZ performance units and units funded with MHA or IZ payments from new development in the study area.

MHA has already been implemented in several neighborhoods outside the study area, including Downtown, South Lake Union, and the University District. MHA payments generated by development in these other neighborhoods would also fund affordable units raising the total number that would be built in the study area under all three alternatives. Detailed discussion of the total number and distribution of income-restricted affordable housing units is including in Section 3.1 Housing and Socioeconomics.

Exhibit 1–4   Approach to MHA Development Capacity Increases, Alternative 2

Displacement Risk and Access to Opportunity	Development Capacity Increases and Expansion of Urban Village Boundaries
Not used explicitly to influence the location and amount of additional growth	Apply development capacity increases using basic planning concepts, Comprehensive Plan policies and Land Use Code criteria, and MHA implementation principles, resulting in a mix of (M), (M1), and (M2) designations.

Apply urban village boundary expansions to a full 10-minute walkshed from the frequent transit station. |

Source: City of Seattle, 2017.

Exhibit 1–5   Approach to MHA Development Capacity Increases, Alternative 3

Displacement Risk and Access to Opportunity	Intensity of Development Capacity Increases and Expansion of Urban Village Boundaries
High Displacement Risk and Low Access to Opportunity	Apply small development capacity increases resulting in a high proportion of MHA (M) designations, with limited instances of (M1), and no (M2) designations.

Apply smaller urban village boundary expansions to a 5-minute walkshed or less from the frequent transit station. |
| **Low Displacement Risk and High Access to Opportunity** | Apply large development capacity increases, resulting in a high proportion of MHA (M1) and (M2) designations, along with some (M) designations.

Apply full urban village boundary expansions to a 10-minute walkshed from the frequent transit station. |
| **High Displacement Risk and High Access to Opportunity** | Apply medium development capacity increases, resulting in a substantial proportion of (M) zoning changes, but also resulting in some (M1) designations and limited instances of (M2) designations.

Apply smaller urban village boundary expansions to a 5-minute walkshed or less from the frequent transit station. |
| **Low Displacement Risk and Low Access to Opportunity** | Apply medium development capacity increases, resulting in a substantial proportion of (M) zoning changes but also some (M1) designations and limited instances of (M2) designations.

Apply full urban village boundary expansions to a 10-minute walkshed from the frequent transit station. |

Source: City of Seattle, 2017.

The location and pattern of the development capacity increases varies between the action alternatives, resulting in differing estimated levels of growth and different quantities of MHA affordable housing in various urban villages. Exhibit 1–6 summarizes the estimated percentage increase of total housing growth compared to Alternative 1 No Action. Exhibit 1–7 shows the estimated number of MHA affordable housing units built in urban villages in the different displacement risk and access to opportunity categories.

Chapter 2 describes many other aspects of the proposed action, including employment growth estimates, the size of proposed urban village boundary expansions. Since the proposed action is intended to address housing affordability, this summary focuses on housing aspects of the proposal.

Alternative 2
Alternative 3

High Displacement Risk & Low Access to Opportunity	Low Displacement Risk & High Access to Opportunity	High Displacement Risk & High Access to Opportunity	Low Displacement Risk & Low Access to Opportunity
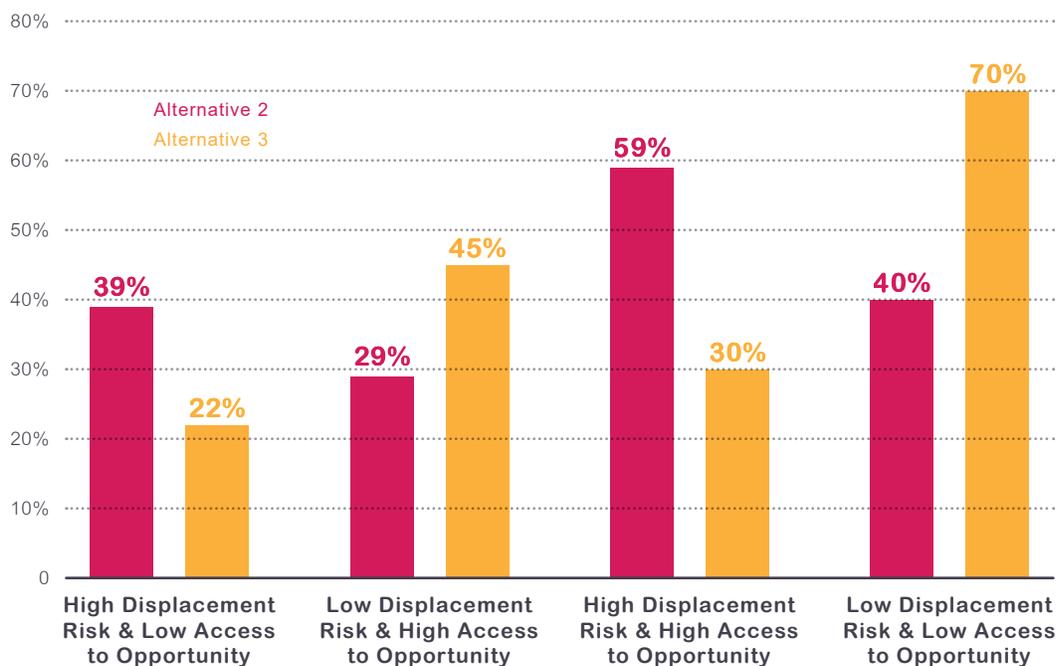
Exhibit 1–6   Percentage Increase in Housing Compared to Alternative 1 No Action

Source: City of Seattle, 2017.

Alternative 2
Alternative 3
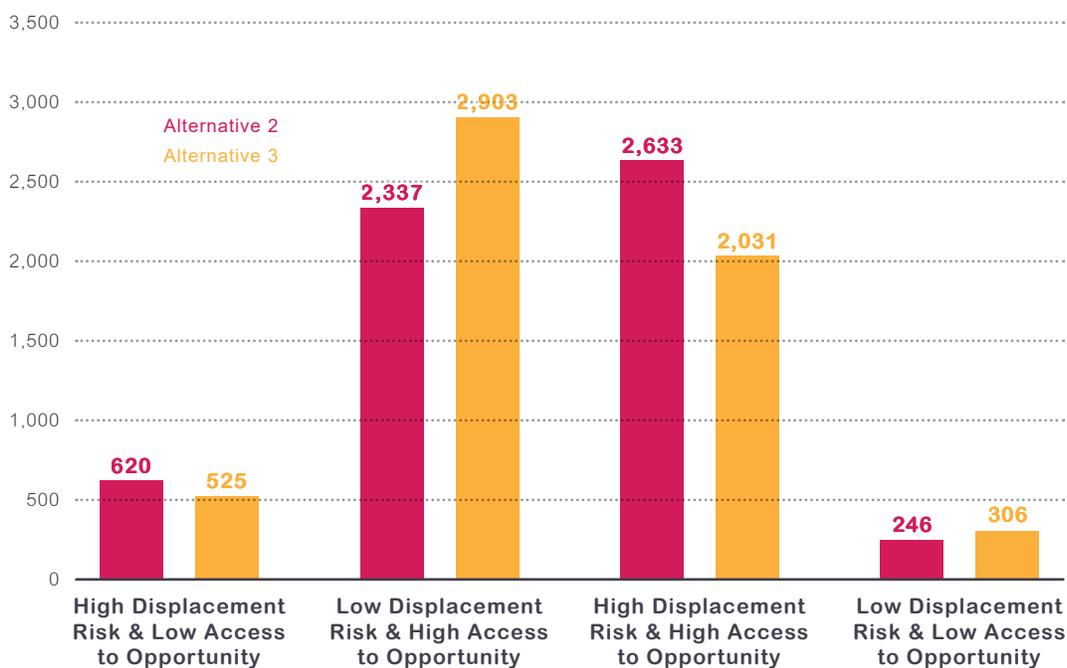
Exhibit 1–7   Income-Restricted Affordable Units Built

Source: City of Seattle, 2017.

1.5 SUMMARY OF IMPACTS AND MITIGATION STRATEGIES

The following pages summarize impacts of the alternatives and mitigation strategies for each element of the environmental analysis. This is an overview of conclusions about impacts and mitigation and is not intended to be a substitute for the comprehensive analysis contained in the Draft EIS. Chapter 3 has a complete discussion of impacts and mitigation strategies for each element of the environment.

HOUSING AND SOCIOECONOMICS

Impacts Common to All Alternatives

The affordability of market-rate housing would continue to be a concern and a burden for many residents under all three alternatives, notwithstanding the significant contribution from implementation of MHA. This is a result of economic forces beyond the reach of MHA.

Housing Supply

- All three alternatives have sufficient capacity to accommodate planned growth, but Alternative 2 and Alternative 3 are better able to accommodate strong housing growth than Alternative 1 No Action because they increase total capacity for housing.
- Alternatives 2 and 3 provide greater housing capacity and supply in lowrise, midrise and residential small lot housing, which have the potential to diversify the supply of new housing.

Housing Affordability

- Alternatives 2 and 3 would provide increased market-rate housing supply, which is likely to reduce upward pressure on market-rate housing costs compared to Alternative 1 No Action.
- For low-income households, the most significant positive impact on housing affordability will be the production of new income-restricted affordable units.
- While all alternatives result in some new income-restricted affordable units in the study area, the action alternatives would generate about 28 times more rent- and income-restricted units than Alternative 1 No Action.

- Increased production of rent- and income-restricted units would disproportionally serve people of color because low-income households are more likely to be households of color and because subsidized housing programs have historically served high percentages of non-white households.

Displacement

- Alternatives 2 and 3 could result in more total demolished units than Alternative 1 No Action.

- Alternatives 2 and 3 would produce more new housing in the study area for every demolished unit—about 14 new units for every demolition compared to 10 under Alternative 1 No Action.

- Based on assumptions, about 13 new affordable units would be built in the study area in Alternatives 2 and 3, for every low-income household.

- Additional housing supply provided in Alternatives 2 and 3 would reduce economic displacement pressures compared to Alternative 1 No Action. However, impacts could vary by neighborhood.

Alternative 1

Alternative 1 No Action would not implement MHA in the study area and would result in substantially less affordable housing than the action alternatives, providing less direct positive impact to low-income households. Alternative 1 would also provide less market-rate housing supply, which provides weaker moderation of upward pressures on market-rate housing costs compared to the Action Alternatives. The amount of physical displacement could be slightly lower under Alternative 1 (using one estimation technique). However, the smaller growth in housing supply compared to the action alternatives could result in greater upward pressure on housing costs and additional economic displacement.

Alternative 2

Under Alternative 2 an estimated 7,513 new affordable units would be built in the study area, about 4,358 more affordable units in Alternative 1, resulting in much greater direct positive impacts for low income households than No Action. Total housing growth would be roughly the same as Alternative 3. The distribution of positive and adverse housing impacts varies for urban villages of different displacement risk and access to opportunity types.

Compared to Alternative 3, Alternative 2 would generate more total housing production in high displacement risk and low access to opportunity areas like Rainier Beach, Othello, and Westwood–Highland Park, and less total new housing in areas with low displacement risk and high access to opportunity like Green Lake, Wallingford, and Madison–Miller. As a result, new market-rate housing would provide a weaker moderating effect on upward pressure on market rents in some of the city's highest cost neighborhoods, compared to Alternative 3.

Areas with high displacement risk and high access to opportunity, such as Columbia City, First Hill–Capitol Hill, and North Beacon Hill are assumed to receive the greatest share of new affordable housing in Alternative 2. This provides positive impacts, as it increases the number of low-income households able to find affordable housing in areas with high displacement risk that also provide good access to opportunity. Conversely, compared to Alternative 3, Alternative 2 would yield fewer rent- and income-restricted MHA housing units in areas with low displacement risk and high opportunity like Green Lake, Wallingford, Madison–Miller, and Ballard. This would result in fewer affordable housing opportunities in neighborhoods where housing costs are among the city's highest.

Alternative 2 would result in a similar total number of low-income households experiencing physical displacement compared to Alternative 3. The pattern of displacement would vary between these alternatives, with Alternative 2 expected to result in slightly more physical displacement in areas with high displacement risk. However, throughout the city as a whole, there is little difference between Alternative 2 and Alternative 3 in the amount of total expected physical displacement of low-income households.

Alternative 2 focuses more growth in urban villages with high displacement risk and high access to opportunity. This additional housing supply has the potential to reduce economic displacement pressures in those same neighborhoods. However, new growth also has the potential to attract new amenities that could increase housing demand and potentially increase economic displacement in some neighborhoods, even while reducing economic displacement pressures in the city as a whole.

Alternative 3

Alternative 3 is expected to result in production of 7,415 new affordable units in the study area, significantly more than Alternative 1 and about the same amount as Alternative 2. In Alternative 3, areas with low displacement risk and high access to opportunity, such as Madison–Miller, Wallingford, and Ballard, are assumed to receive the greatest share of new affordable housing. More rent- and income-restricted housing in these locations would have a positive housing impact because more low-income households could live in areas with high average housing costs and good access to opportunity.

The greatest share of new housing growth would occur in areas with low displacement risk and high access to opportunity like Green Lake, Wallingford, Madison–Miller, and Ballard. Given the strong housing demand in these neighborhoods, additional housing could result in more housing opportunities in these neighborhoods and provide a positive impact in the form of less upward pressure on housing costs here.

Alternative 3 is estimated to produce fewer new income-restricted affordable units in areas with high displacement risk and high access to opportunity, such as Columbia City, North Beacon Hill, and 23rd & Union-Jackson, compared to Alternative 2. Many of these neighborhoods also have historically high percentages of people of color. It may be concluded, therefore, that Alternative 3 provides weaker direct affordable housing benefits to low-income households who wish to gain or retain access to these neighborhoods in the form of income restricted affordable housing, compared to Alternative 2.

Alternative 3 would result in a similar total number of low-income households experiencing physical displacement compared to Alternative 2. The pattern of displacement would vary between these alternatives, with Alternative 3 expected to result in slightly more physical displacement in areas with high access to opportunity. However, throughout the city as a whole, there is little difference between Alternative 2 and Alternative 3 in the amount of total expected physical displacement of low-income households.

Alternative 3 focuses less growth in urban villages with high displacement risk and high access to opportunity, like 23rd & Union–Jackson, and First Hill–Capitol Hill. Compared to Alternative 2, the smaller supply of both market-rate housing and new affordable housing in these neighborhoods has the potential to increase economic displacement pressures in those neighborhoods.

Mitigation Measures

The following strategies are identified to address significant housing affordability challenges and displacement of vulnerable populations.

Incorporated Plan Features

- By implementing MHA in the study area while increasing development capacity, the action alternatives provide increased housing supply and additional rent-restricted affordable housing.

Housing Affordability

- In addition to increasing housing choice by strategically locating new affordable housing investments, Office of Housing can work with private owners to ensure that affordable units are affirmatively marketed to those with higher barriers to accessing housing.

- Continue to use additional sources to fund preservation and creation of affordable housing, including the Federal low-income housing tax credit (LIHTC) program and the voter-approved Housing Levy.

- Use the public-private Regional Equitable Development Initiative (REDI) Fund to help finance the acquisition of property along transit corridors to preserve the affordability of future housing and community facilities.

- Continue to make the Multifamily Tax Exemption (MFTE) program available to incentivize builders to rent- and income-restrict 20 percent or more of housing units in new multifamily structures, in exchange for a partial property tax exemption for up to 12 years.

- The development capacity increases in the action alternatives could be implemented with Incentive Zoning if implementation of MHA did not occur.

- Seek state legislation to enact a local-option property tax exemption for existing rental homes. The Preservation Tax Exemption could create a local option for a 15-year tax exemption for property owners in the private market who agree to set aside 25 percent of units in their buildings for low-income tenants.

- Partner with major employers to contribute to a City fund that builds and preserves affordable housing.

- Pursue state legislation to authorize a local option Real Estate Excise Tax (REET) to allow municipalities to re-capture a portion of increased land value upon the transfer of property and reinvest it in critical affordable housing infrastructure.

<u>Anti-Displacement</u>

- Increase the effectiveness of the Tenant Relocation Assistance Ordinance (TRAO) by providing assistance to tenants with language barriers or those suffering from mental illness or cognitive disabilities, revising the definition of "tenant household," and seeking authorization in State law to increase the income eligibility level for TRAO payments.

- Continue and expand the Equitable Development Initiative (EDI), a set of strategies that emerged from the Growth and Equity Analysis. EDI involves many City departments coordinating to address equity in underserved communities and displacement as Seattle grows.

Significant Unavoidable Adverse Impacts

Implementing MHA cannot meet the City's entire need for affordable housing. Seattle will continue to face housing affordability challenges. Implementing MHA in the study area would be a step towards mitigating the housing affordability challenge identified in the Seattle 2035 Comprehensive Plan, but it would not fully alleviate the need for affordable housing. Some demolition of housing and displacement of existing residents will occur with or without MHA. Housing costs will continue to be a burden for a segment of the Seattle's population due to high demand and competition for housing generated by a strong job market and attractive natural and cultural amenities. Therefore, even with implementation of MHA in the study area, Seattle will continue to face a significant challenge in the area of housing affordability. This condition is a result of market and economic forces, however, and not an impact of MHA.

LAND USE

Impacts Common to All Alternatives

Under all alternatives, Seattle would likely experience continued housing and employment growth. Under all alternatives, most future growth would occur in urban centers and urban villages, as encouraged by Comprehensive Plan policies. Because Alternative 1 No Action would not implement MHA or modify existing land use regulations, the following discussion pertains to Alternatives 2 and 3 and describes the impacts of these two alternatives relative to what would be allowed under existing zoning and development regulations.

Overall, at the citywide scale, land use impacts may be summarized as follows:

- Changes to land use patterns would be consistent with the overall Comprehensive Plan strategy.

- Denser and more intensive housing and commercial development would occur primarily in existing and expanded urban villages.

- Changes would result in gradual shifts from single-family to multifamily or mixed residential and commercial uses, primarily in urban villages and urban village expansion areas.

- Changes would result in gradual intensification of density, use, and scale in all rezoned areas over time.

- Most land use changes would be minor or moderate in level of impact, with significant impacts occurring in particular locations.

- Significant land use impacts would be most likely to occur near frequent transit stations, at transitions between existing commercial areas and existing single-family zones, and in areas changing from existing single-family zoning in urban villages and urban village expansion areas.

- A greater variety of housing types would occur in Seattle's residential areas, as Residential Small Lot zoning is applied to some current single-family areas and the amount of land zoned multifamily increases, while the current high percentage of land zoned Single Family would decrease incrementally.

- In general, the potential for land use impacts and the severity of land use impacts would tend to increase as the degree of change allowed by rezoning increases, but impacts would also vary depending on the specific zoning change and location.

Development capacity increases would generally be proportional to each area's Seattle 2035 20-year growth estimates and would result in more intense land use patterns in affected areas and some changes in building height, bulk, and scale. The boundaries of some urban villages would expand and would incorporate rezones of some land currently zoned single-family residential. As a result, compared to No Action, these changes would have impacts in the form of: changes of use, density increases, and building scale increases. The degree of land use impacts ranges from minor to significant.

In general, greater land use impacts would result in areas where zoning changes allow greater development intensity, which generally corresponds with areas proposed for (M1) and (M2) tier MHA capacity increases. However, specific existing localized conditions can lead to larger or smaller land use impacts for any given zoning change. Alternatives 2 and 3 differ in the location and distribution of (M1) and (M2) zoning changes.

Alternative 2

Compared to Alternative 3, Alternative 2 would have the following relative land use impacts:

- High Displacement Risk and Low Opportunity urban villages (e.g., Rainier Beach, Othello, Westwood–Highland Park) would have a higher percentage of lands in the (M1) and (M2) tiers and more instances of moderate and significant land use impact.

- Low Displacement Risk and High Opportunity urban villages (e.g., Wallingford, Green Lake, Madison–Miller) would have a much lower percentage of lands in the (M1) and (M2) tiers and fewer instances of moderate and significant land use impact.

- High Displacement Risk and High Opportunity urban villages (e.g., First Hill–Capitol Hill, 23rd & Union–Jackson) would have a higher percentage of lands in the (M1) and (M2) tiers and more instances of moderate and significant land use impact.

- Low Displacement Risk and Low Opportunity urban villages (e.g., Morgan Junction) would have a lower percentages of lands in the (M1) and (M2) tiers and fewer instances of moderate and significant land use impact.

Alternative 3

Compared to Alternative 3, Alternative 2 would have the following relative land use impacts:

- High Displacement Risk and Low Opportunity urban villages (e.g., Rainier Beach, Othello, Westwood-Highland Park) would have a lower percentage of lands in the (M1) and (M2) tiers and fewer instances of moderate, and significant land use impact.

- Low Displacement Risk and High Opportunity urban villages (e.g., Wallingford, Green Lake, Madison–Miller) would have a much higher percentage of lands in the (M1) and (M2) tiers and more instances of moderate and significant land use impact.

- High Displacement Risk and High Opportunity urban villages (e.g., First Hill–Capitol Hill, 23rd & Union–Jackson) would have a lower percentage of lands in the (M1) and (M2) tiers and fewer instances of moderate and significant land use impact.

- Low Displacement Risk and Low Opportunity urban villages (e.g., Morgan Junction) would have a higher percentages of land in the (M1) and (M2) tiers and more instances of moderate and significant land use impact.

Mitigation Measures

Incorporated Plan Features

- Changes in intensity permitted by MHA rezones are generally minor to moderate in degree. Although some changes to land use would occur, most would not be considered significant when viewed in the context of existing land use patterns and the city's planned growth.

- Land use changes that create more gradual transitions between higher- and lower-scale zones, may mitigate land use impacts over the long term as this may achieve less abrupt edges between land uses of different scales and intensity.

Regulations and Commitments

- Chapter 23.41 of the Seattle Municipal Code establishes citywide requirements for Design Review. The Design Review process ensures that new development complies with adopted design guidelines and is compatible with surrounding land uses.

Other Possible Mitigation Measures

The following tools are available if the City wishes to provide additional mitigation of identified land use impacts:

- Amend zoning regulations in urban villages to explicitly address transitions to surrounding areas, particularly single-family residential areas adjacent to urban village boundaries.

- Implement specific regulations for infill development in urban village expansion areas to address temporary land use incompatibilities that could arise as newer, more intense development occurs alongside existing lower-intensity uses.

- Implement specialized development standards to address (M2) Tier Rezones or other land use changes that would result in a significant change of use or scale.

- Address potential land use impacts as part of neighborhood-level planning efforts.

- Consider topographical changes, and reduce the proposed degree of land use change, or select a lesser intensive alternative, in specific locations where topography could exacerbate impacts

- Consider specific block patterns and access conditions (such as lack of an alley, where mitigation will more likely be needed), and reduce the degree of land use change, or select a lesser intensive alternative, in specific locations with constraints.

Significant Unavoidable Adverse Impacts

Under all three alternatives, Seattle would experience housing and job growth, and much of it is expected to occur in locations in the study area. Generally, these areas will see an increase in building height and development intensity as some areas convert from lower-density residential to higher-density patterns and a more urban character. Some of these changes to land use patterns would rise to the level of a significant land use impact, and would be an unavoidable consequence of MHA, which uses the availability of increased development capacity as an incentive to generate needed affordable housing. Such changes are also an expected and common outcome of the continuum of change of urban development form over time as urban population and employment growth occurs. Some localized land use conflicts and compatibility issues in the study area are likely to arise as growth occurs; adopted regulations and procedures would mitigate the impact of changes.

AESTHETICS

Impacts Common to All Alternatives

All EIS alternatives would result in a general increase in the level of development in the study area compared to existing conditions. The increase may result from expected growth as anticipated in the Comprehensive Plan and/or an additional increment of growth from the proposed zoning changes. As described in Chapter 2, each alternative would distribute capacity for future residential and commercial growth to different areas of the city, though all alternatives would locate most future growth in urban villages.

MHA implementation under Alternatives 2 and 3 would resulting in an incremental increase in the scale and intensity of development. The effects of this increase on development character include greater building height, bulk, and scale, as well as view obstruction and shading effects, all of which can result in aesthetic impacts. The distribution of greater or lesser aesthetic impacts in different urban villages in Alternative 2 and 3 parallels the distribution of greater or lesser land use impacts summarized above for Land Use, and in Chapter 3.

Mitigation Measures

Incorporated Plan Features

The Action Alternatives include features intended to reduce the negative effects associated with increased development intensity:

- Requirements for upper-level setbacks in certain zones
- Font and side façade design standards in certain zones
- Implementation of side and rear setbacks and building depth limits in certain zones

Regulations and Commitments

Existing policies and regulations can mitigate aesthetic impacts:

- Policies for the protection of public views
- Policies to protect open spaces from shading and shadow effects caused by development
- Citywide requirements for Design Review

Other Potential Mitigation Measures

Aesthetic and urban design impacts could be further mitigated through implementation of the following or similar measures:

- For high-rise development, apply lower height limits for "podium" portions of the buildings to maintain a lower-intensity appearance at street level and reduce bulk and scale impacts on the pedestrian environment;
- Through the Design Review process, incorporate ground-level open space or mid-block pedestrian pass-throughs, promote slimmer building forms that minimize blockage of light and views, and include streetscape improvements.
- Work with neighborhood groups to create and codify neighborhood design guidelines.

Significant Unavoidable Adverse Impacts

Under all alternatives, additional growth would occur in the study area, leading to a general increase in building heights and development intensity over time, causing aesthetic impacts. The proposal includes a variety of features and development regulation amendments to minimize these impacts. In combination with the City's adopted development regulations, Design Review process, aesthetic impacts should be reduced to less than significant levels. Therefore, no significant unavoidable adverse impacts are anticipated. In the urban context of a rapidly growing city, such changes are substantial but are also subjective in nature and are not necessarily significant impacts pursuant to SEPA.

TRANSPORTATION

Four types of impacts were considered in this evaluation: auto and transit, pedestrian and bicycle, safety, and parking. An array of metrics were prepared for analysis purposes, including traffic operations on state highways, transit crowding, and travel time.

Auto and Transit

The analysis uses a "screenlines" to evaluate auto (including freight) and transit operations for potential impacts. A screenline is an imaginary line across which the number of passing vehicles is counted. On each screenline a (v/c) ratio: the number of vehicles crossing compared to the designated capacity of the roadway, can be measured. Over the next twenty years, traffic volumes are expected to increase throughout the city

due to growth that would occur regardless of the proposed alternatives. Three screenlines are expected to exceed their thresholds in the PM peak hour in 2035 in all alternatives:

- South City Limit–Martin Luther King Jr. Way to Rainier Ave S in the southbound direction
- Ship Canal–Ballard Bridge in the northbound direction
- South of S Jackson St–12th Ave S to Lakeside Ave S in the southbound direction

Deficiencies under the No Action alternative are expected for automobile traffic, freight, and transit at those locations. In Action Alternatives 2 and 3, due to increased growth assumed, there would be a potentially significant adverse impact to automobile traffic, freight, and transit for these locations.

Mode share, a measure of the percentage of travelers using alternative to Single Occupancy Vehicles (SOV) is expected to decrease (a positive trend), in all alternatives. All of the sectors are expected to meet the 2035 SOV target under the three alternatives.

Pedestrian and Bicycle

The City has identified plans to improve the pedestrian and bicycle network through its Pedestrian Master Plan, Bicycle Master Plan and various subarea planning efforts. These plans are actively being implemented and are expected to continue to be implemented regardless of which land use alternative is selected. However, the prioritization and/or phasing of projects may vary depending on the expected pattern of development. Although Alternatives 2 and 3 would result in increased numbers of pedestrian and bicycle trips compared to the no action alternative, capacity constraints on non-motorized facilities are not expected. Therefore, given that the pedestrian and bicycle environment is expected to become more robust regardless of alternative, no significant impacts are expected to the pedestrian and bicycle system under any of the alternatives.

Safety

The City has a goal of zero traffic fatalities and serious injuries by 2030. This goal, and the policies and strategies supporting it, will be pursued regardless of the land use alternative selected. The action alternatives are expected to have roughly two percent more vehicle trips than the no action alternative, which could potentially lead to an increase in the

number of citywide collisions. The travel demand model indicates that speeds throughout the network would be slightly lower under the action alternatives, which could have a beneficial effect on safety. The minor magnitude of these safety indicators are not expected to substantively change the level of safety among the future year alternatives. Therefore, no significant impacts are expected under any of the alternatives.

Parking

There are currently some areas of the city where on-street parking demand exceeds parking supply. Given the projected growth in the city and the fact that the supply of on-street parking is unlikely to increase by 2035, a parking deficiency is expected under the no action alternative. With the increase in development expected under Alternatives 2 and 3, particularly in urban villages which already tend to have high on-street parking utilization, parking demand will be higher than the no action alternative. Therefore, significant adverse parking impacts are expected under Alternatives 2 and 3.

Mitigation Measures

The mitigation measures identified in the Seattle 2035 Comprehensive Plan EIS are applicable to MHA and will mitigate identified significant adverse impacts.

Other Proposed Mitigation Measures

The following additional mitigation measures would address impacts identified that would result from the action alternatives.

- Purchase additional bus service from King County Metro along affected corridors.

- Increase the screenline threshold from 1.0 to 1.2 to acknowledge the City is willing to accept higher congestion levels in certain areas. A screenline threshold of 1.2 is consistent with other higher density areas of the city.

- Continue ongoing monitoring of volumes across the Ballard Bridge and complete a feasibility study of a bridge replacement (or new Ship Canal crossing) with increased non-auto capacity if ongoing traffic monitoring identifies a substantial increase in PM peak hour traffic volumes across the bridge.

- Strengthen TDM requirements for new development to reduce SOV trips, particularly in the Ballard, Crown Hill, and Greenwood, Capitol Hill, First Hill, Central District, and Rainier Valley areas.

- Implement parking maximums that would limit the number of parking spaces which can be built with new development.
- Increase parking taxes/fees.
- Review and revise transit pass provision programs for employees.
- Encourage or require transit pass provision programs for residents.

Significant Unavoidable Adverse Impacts

Travel demand and associated congestion is expected to increase over time regardless of the alternative pursued. With respect to the two action alternatives studied in this Draft EIS, potentially significant adverse impacts are identified for screenline volumes and, significant adverse impacts are identified for on-street parking.

The parking impacts are anticipated to be brought to a less-than-significant level by implementing a range of possible mitigation strategies such as those discussed. Potential mitigation measures for the three screenlines impacted by the action alternatives have been proposed. If one or more of those measures are implemented, it is expected that the impact could be reduced to a less-than-significant level. Therefore, no significant unavoidable impacts to screenlines are expected.

HISTORIC RESOURCES

Impacts Common to All Alternatives

Redevelopment, demolition, and new construction could occur in the study area under all alternatives; these projects could impact historic resources or result in ground disturbance. However, existing policies and regulations regarding review of historic and cultural resources would not change under any alternative. For development projects that would be subject to SEPA, potential impacts to historic and cultural resources would still be considered during project-level SEPA review. None of the alternatives proposes zoning changes within the boundaries of the eight designated Seattle historic districts or within the seven National Register historic districts that are located within and are abutting the study area. Potential decreases to the historic fabric of a neighborhood are likely to occur if historic buildings are redeveloped or demolished and new buildings are constructed that are not architecturally sympathetic to the existing historic characteristics of a neighborhood. Areas with a higher growth rate have the potential for more redevelopment than areas with lower projected growth rates. Systematic historic resource surveys have

been completed for 11 neighborhoods in the study area, which can assist in the identification and protection of historic resources.

Alternative 1 No Action

Under Alternative 1 No Action, redevelopment, demolition, and new construction projects could occur in the study area consistent with growth estimated in the Seattle 2035 Comprehensive Plan. These projects may be exempt from project-level SEPA review.

Alternative 2

Alternative 2 estimates ten urban villages with high housing growth rates, where there could be a greater likelihood of greater impacts to historic resources due to development: 23rd & Union–Jackson, Columbia City, Crown Hill, First Hill–Capitol Hill, Morgan Junction, North Beacon Hill, Northgate, Othello, South Park, and Westwood-Highland Park. Of these, the oldest urban villages are 23rd & Union–Jackson and First Hill–Capitol Hill. These are likely to contain the oldest buildings. Systematic inventories have been conducted for four of the 10 urban villages.

Alternative 3

Alternative 3 includes eight urban villages with high housing growth rates, where greater impacts to historic resources due to development may occur: Admiral, Crown Hill, Eastlake, Fremont, Green Lake, Madison–Miller, Morgan Junction, and Wallingford. Of these, the oldest urban villages are Eastlake and Madison–Miller. These are likely to contain a higher number of older buildings than the others which were incorporated in 1891 or later. Systematic inventories have been conducted for three of the eight urban villages.

Mitigation Measures

Mitigation measures to reduce potential impacts to historic and cultural resources include:

- Comprehensive Plan policies that promote new development consistent with the historic character of the neighborhood.
- City regulations including the Seattle City Landmark process and archaeological surveys.
- Funding continuation of the comprehensive survey and inventory work that was begun in 2000.

Other mitigation measures that the city could elect to pursue could include:

- Establishing new historic districts or new conservation districts such as the City's Pike/Pine Conservation District.
- Establishing Transfer of Development Rights (TDR) programs within new conservation districts to provide incentives for property owners to keep existing character structures;
- Requiring any structure over 25 years in age that is subject to demolition, including those undergoing SEPA-exempt development, to be assessed for Landmark eligibility.
- If seismic retrofitting is required for Unreinforced Masonry Buildings (URM), adherence to the Secretary of the Interior's Standards for the Treatment of Historic Properties.

Significant Unavoidable Adverse Impacts

At the programmatic level of this analysis, no significant unavoidable impacts to historic and cultural resources are anticipated under any of the proposed alternatives.

BIOLOGICAL RESOURCES

The biological resources addressed in the EIS analysis include environmentally critical areas (ECAs), as defined by SMC 25.09, and the City's urban forest and tree cover.

Impacts Common to All Alternatives

MHA would not directly impact any biological resources, but development allowed by the MHA program could affect these resources by affecting decisions to redevelop or expand properties containing trees or ECAs. All anticipated growth has the potential to affect these resources and would be required to comply with the existing regulations for protection of ECAs and trees. Development and redevelopment is expected to occur under all of the alternatives, although at different projected rates. In general, development of any kind has the potential to affect ECAs and tree canopy cover through site disturbance during construction and through land use activities after construction.

Alternative 1 No Action

Under Alternative 1, redevelopment, demolition, and new construction projects could occur in the study area under existing zoning. All existing critical area regulations would continue to govern development in and near ECAs under the current zoning. Changes in tree canopy coverage would still be expected, but under current zoning and tree protection policies, codes, and development standards.

Alternative 2

Growth will occur in all urban villages in varying amounts due to the proposed changes in zoning and urban village boundary expansion, creating potential for impacts to local ECAs and tree canopy during construction and by increased density of urban uses and activities after construction. Under Alternative 2, an additional 142 acres of mapped ECAs would occur within the boundaries of Urban Villages compared to No Action, and could potentially be impacted by development. Based on assumptions in Alternative 2, there is the potential for additional loss of between 5 and 11 acres of tree canopy cover within the study area compared to No Action. However, for every displacement risk and access to opportunity urban village type, there is less than one-half of one percent (<0.5 percent) difference between the existing tree canopy cover and the Alternative 2 scenario. This change is not considered a significant impact.

Alternative 3

Growth will occur in all urban villages in varying amounts due to the proposed changes in zoning and urban village boundary expansion, creating potential for impacts to ECAs and tree canopy during future construction and by increased density of urban uses and activities after construction. Under Alternative 3, an additional 102 acres of mapped ECAs would occur within the boundaries of Urban Villages compared to No Action, and could potentially be impacted by development. Based on assumptions in Alternative 2, there is the potential for additional loss of between 8 and 16 acres of tree canopy cover within the study area compared to No Action. However, for every every displacement risk and access to opportunity urban village type, there is less than one-half of one percent (<0.5 percent) difference between the existing tree canopy cover and the Alternative 3 scenario. This change is not considered a significant impact.

Mitigation Measures

The continued application of the City's existing policies, review practices and regulations, would help to avoid and minimize the potential for significant adverse impacts to critical areas discussed in this section. For tree canopy, the City is evaluating a range of urban forestry policies and programs in preparation for the 2018 update of the Urban Forest Stewardship Plan (UFSP). Current options the City is exploring include:

- Improve enforcement of regulations and penalties.
- Improve and/or expand tree protections.
- Expand incentives and development standards to grow trees as development occurs, specifically in single and multifamily residential areas.
- Expand and enhance trees on public lands and in the right-of-way.
- Partner with the community to expand trees in low canopy areas to advance environmental justice and racial equity.
- Preserve and enhance tree groves to maximize environmental benefits.
- Strategically plant and care for trees to mitigate heat island effect and promote greater community resilience.

Significant Unavoidable Adverse Impacts

No significant unavoidable adverse impacts to ECAs or tree canopy cover have been identified.

OPEN SPACE AND RECREATION

Impacts Common to All Alternatives

No direct impacts to parks and open space in the form of physical disruptions, alteration, or removal of parks land would result from housing and job growth in the study area. Indirect impacts to parks and open space could occur from changes in the distribution, accessibility, use, or availability of parks and open space due to additional population growth. The primary impact to parks and open space under all alternatives would be a decrease in availability, i.e., greater crowding in parks, a need to wait to use facilities, unavailable programs, or a need to travel longer distances to reach an available park facility. The quality or level of services available within parks and open space is another factor in the determination of adequacy of parks and open space, but because

measures of quality are difficult to obtain and subjective this analysis focuses on the amount of and walkability to parks and open space lands, and distribution of parks and open space.

A Draft 2017 Parks and Open Space Plan was released in May 2017. Although the 2017 Plan has not been finalized, it is likely to be adopted in fall 2017, and the analysis for this Seattle MHA EIS uses the metrics from this plan to identify significant impacts.

Alternative 1 No Action

Parks and open space impacts under Alternative 1 No Action would be the same as those evaluated for the Preferred Alternative in the Seattle 2035 Comprehensive Plan Final EIS (City of Seattle, 2016). Alternative 1 would not meet the 2017 citywide LOS in the year 2035, unless additional acres of park and open space land is acquired, as expected pursuant to the 2017 Draft Parks and Open Space Plan. Gaps in the geographic availability or shortfalls from optimal location, size, or number of parks could remain over the long-term, and the distribution of these gaps in different urban villages is described in Chapter 3.

Alternative 2

Growth under Alternative 2 would have similar types of impacts to the availability of parks and open space as Alternative 1, but to a larger degree due to the potential for more growth. The City would have to add a greater amount of open space during the 20-year period to meet the 2017 citywide LOS. Gaps in geographic availability or shortfalls from optimal location, size, in different urban villages could occur. The impacts would be greatest in urban villages with the largest increases in growth under Alternative 2 compared to Alternative 1, such as Ballard, Northgate, First Hill-Capitol Hill, North Beacon Hill, North Rainier, and Aurora-Licton Springs.

Alternative 3

Growth under Alternative 3 would have similar types of impacts to the availability of parks and open space as Alternative 1, but to a larger degree due to the potential for more growth. The City would have to add a greater amount of open space during the 20-year period to meet the 2017 citywide LOS. Overall there would be similar reductions in park and open space availability to Alternative 2. Gaps in geographic availability or shortfalls from optimal location, size, in different urban villages

could occur. Under Alternative 3 there would be less of a decrease in availability in First Hill–Capitol Hill and North Beacon Hill.

Mitigation Measures

Given greater overall demand for parks and open space in the study area, Seattle Parks & Recreation (SPR) should consider MHA growth projections in the next open space gap analysis to address future potential impacts through the next Development Plan. According to the 2017 LOS, approximately 40 acres of new parks and open space land would be required under Alternative 1, and approximately 434 acres would be required under Alternatives 2 and 3. Provision of additional parks and open space land should occur in urban villages with substantial walkability gaps that would see a reduction in park and open space availability.

The mitigation strategies outlined in the Seattle 2035 Comprehensive Plan EIS would provide tools necessary to accomplish the City's parks and open space goals. One of these strategies is to incorporate incentives and other regulatory tools to encourage and enforce developers to set aside publicly accessible usable open space. Examples of specific vehicles to achieve mitigation in this way include impact fees for open space, or a transfer of development rights (TDR) for open space that could be implemented in certain zones or locations.

Significant Unavoidable Adverse Impacts

Development under all alternatives would have significant adverse impacts to parks and open space. However, these impacts can be avoided through mitigation as described above.

PUBLIC SERVICES AND UTILITIES

Public services and utilities analyzed in the EIS include: Police Services, Fire and Emergency Medical, Public Schools, Water, Sewer, and Drainage and Electricity.

There would be no direct impacts to public services and utilities from the proposed zoning changes under the MHA program. Indirectly, however, development resulting from implementation of proposed zoning changes would cause substantial population increases in some areas. Population growth generally increases demand for public services, but more compact patterns of growth can also reduce the distances that emergency vehicles need to travel to respond to service calls. Similarly,

population growth increases demand on utilities, regardless of density, but higher density can concentrate demand and cause local capacity problems.

Water System, Sewer, and Drainage, Seattle City Light

Future development under any of the alternatives would likely result in greater demands on localized areas of the water supply, sewer system, distribution system, and electric power. However, SPU and SPL have methods in place that ensure development is not endorsed without identification of demand and availability of utilities. Development in areas of informal drainage could have an impact on localized stormwater drainage. All projects must comply with the minimum requirements in the Seattle Stormwater Code (SMC 28.805), even where drainage control review is not required.

The following urban villages, all north of 85th St, are in areas with a large amount of informal drainage.

- Crown Hill
- Aurora–Licton Springs
- Northgate
- Bitter Lake
- Lake City

Of these villages, Bitter Lake and Aurora–Licton Springs also overlap capacity constrained areas, and all of these urban villages have portions served by ditch/culvert systems which are inherently capacity constrained. Crown Hill is the only urban village boundary expansion area of these villages. The expansion area would include blocks north of 85th St with informal drainage.

Police

The South Precinct is currently at capacity; any future growth would result in an impact to the South Precinct. If the planned North Precinct is built, it would provide adequate capacity for future growth. In other precincts, impacts would vary, depending on the distribution of growth under the alternatives. The pattern of growth under Alternatives 2 and 3 would be denser in some areas, resulting in a greater concentration of people within a precinct that the police department would have to serve.

Fire and Emergency Medical Services

The pattern of growth would result in a greater concentration of people within an area (Battalion) that fire and emergency would have to serve in the Action Alternatives. Existing growth trends in South Lake Union (Fire Station 2) and portions Bitter Lake, Aurora–Licton Springs, Crown Hill, and Greenwood–Phinney Ridge (Fire Station 31) could contribute to increased service call volumes and potential slower average response times in these areas. Implementation of the proposed project under Alternative 2 and 3 would result in a higher number of housing units that would need fire and emergency services and therefore could result in additional impacts to Fire Station 31. However, the City would continue to manage fire and EMS services in the city as a whole in view of planned housing and employment growth (City of Seattle, 2015).

Public Schools

For SPS, growth is expected to be most evident in northwest Seattle, northeast Seattle, Downtown/South Lake Union and Capitol Hill/Central District. The northwest Seattle, northeast Seattle and Capitol Hill/Central Districts currently have capacity to serve potential growth. SPS would respond to the exceedance of capacity as it has done in the past, by adjusting school boundaries and/or geographic zones, adding/removing portables, adding/renovating buildings, reopening closed buildings or schools, and/or pursuing future capital programs. If the MHA program is adopted, SPS would adjust their enrollment projections accordingly for the next planning cycle.

The rise in enrollment at public schools in urban villages will impact SPS transportation services. Northgate, Bitter Lake, Lake City, North Beacon Hill, Othello, Rainier Beach, South Park, Greater Duwamish are currently experiencing strain on existing deficient sidewalk infrastructure. As a result, the increased school capacity in these villages would subsequently burden the existing sidewalk infrastructure even further, posing a safety risk to pedestrian students.

Mitigation Measures

Mitigation recommendations proposed in Section 3.8.3 of the Seattle 2035 Comprehensive Plan EIS would also apply to the potential impacts identified for this project, including prioritizing identified needs in areas that currently experience deficiencies and are anticipated to grow in number of residences. No other mitigation would be required.

Additional mitigation measures to address stormwater drainage impacts in areas of informal drainage could be considered by the City. The City could strengthen tools and regulations to ensure that systematic stormwater drainage improvements are made at the time of small scale infill developments in areas of informal drainage. Tools could include incorporating drainage design techniques in the low-cost sidewalk improvements section of the Right-of-Way Improvements Manual.

Another potential tool is to establish a latecomer agreement mechanism for sidewalk / drainage improvements. This tool would allow homeowners and builders of small scale development projects to sign an agreement to contribute to future block-scale sidewalk / drainage improvements at the time the City is prepared to construct a block-scale improvement in the area. The tool could be combined with low-cost loan financing assistance from the city.

Significant Unavoidable Adverse Impacts

No significant unavoidable impacts to public services or utilities are anticipated at this time for any alternative. Existing local or statewide regulatory framework would apply at the time of development that would identify any specific project-level impacts and would be addressed on a project-by-project analysis.

AIR QUALITY AND GREENHOUSE GAS EMISSIONS

Air Quality

Construction-Related Emissions. Future growth under any alternative would generate construction phase air emissions, such as exhaust emissions from heavy duty construction equipment and trucks, as well as fugitive dust emissions associated with earth-disturbing activities. Given the transient nature of construction-related emissions, construction related emissions associated with all alternatives are identified as a minor adverse air quality impact.

Land Use Compatibility and Public Health Considerations. Future growth could result in more people living near mobile and staionary sources of air toxics and particulate matter $PM_{2.5}$. Portions of Seattle located within 200 meters of major highways, rail lines that support diesel locomotive operations, and major industrial areas are exposed to relatively high cancer risk values of up to 800 in one million—fourteen

urban villages are within this 200 meter buffer. The action alternatives would increase the potential number of people or other "sensitive receptors" (i.e. hospitals, schools, daycare facilities, senior housing) located near these existing sources of harmful air pollutants. To address potential land use compatibility and public health impacts, the City could consider separating residences and other sensitive uses (such as schools) from highway, rail lines, and port facilities by a buffer of 200 meters. Where separation by a buffer is not feasible, consider filtration systems for such uses.

Greenhouse Gas Emissions

Construction-Related Greenhouse Gas Emissions. Greenhouse gas emissions (GHGs) would be emitted during construction activities from demolition and construction equipment, trucks used to haul construction materials to and from sites, and from vehicle emissions generated during worker travel to and from construction sites. However, because of the combination of regulatory improvements and Climate Plan Actions under way, construction related GHG emissions associated with all three alternatives would be considered a minor adverse air quality impact.

Transportation-related Greenhouse Gas Emissions. Under all alternatives, projected improvements in fuel economy and a cleaner vehicle fleet outweigh the projected increase in vehicle miles traveled. For this reason, all of the alternatives are expected to generate lower GHG emissions than current emissions in 2015 and all would generate roughly the same annual GHG emissions.

Significant Unavoidable Adverse Impacts

No significant unavoidable impacts to air quality and greenhouse gas emissions are anticipated under any of the proposed alternatives.

1.6 SIGNIFICANT AREAS OF CONTROVERSY AND UNCERTAINTY AND ISSUES TO BE RESOLVED

The primary issues to be resolved are the specific pattern, distribution, and intensity of the development capacity increases that could be adopted in different urban villages, to effectively implement MHA in the study area. The basic approach of the proposed action, providing development capacity increases in order to implement MHA, is somewhat controversial. Aspects of the proposal with the most controversy include:

- The approach to MHA development capacity increases in urban villages of differing displacement risk and access to opportunity.
- The intensity of MHA rezones in areas currently zoned Single Family Residential in existing urban villages.
- The extent of proposed urban village boundary expansions.

1.7 BENEFITS AND DISADVANTAGES OF DELAYING IMPLEMENTATION

Delaying MHA implementation in the study area and reserving action for a future time is possible. However, delay of the proposal would be likely to exacerbate the housing affordability problem. There is currently strong demand for housing, and significant housing development activity in Seattle. Delay of MHA implementation would forego opportunities for development activity to include rent and income restricted housing in the study area.

One possible benefit of implementing the action is to enable additional time for community engagement on proposed development capacity increases. However, substantial community engagement has been conducted already as summarized in Appendix B, and there will be additional opportunities for community engagement through this SEPA process, and at the time of City Council deliberation on the proposal.

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2

ALTERNATIVES.

2.1   INTRODUCTION

PROPOSED ACTION OVERVIEW

The City of Seattle seeks to address a pressing need for housing, especially affordable housing, experienced by households and residents across the income spectrum. The need is greatest for households with lower incomes who are not adequately served by the current housing market. The need for affordable housing is well documented and can be measured in many ways. More than 45,000 of Seattle households, or about one in seven, currently pay more than half of their income on housing, a condition referred to as severe cost burden. Average rent for a one-bedroom apartment in Seattle has increased 35 percent over the last five years and is unaffordable by conventional measures to a worker earning a $15 minimum wage. The lack of affordable housing has disproportionate impacts on certain populations. Nearly 35 percent of Black/African American renter households in Seattle pay more than half of their income on housing, compared to about 18 percent of White renter households. The City is pursuing numerous strategies to address Seattle's housing affordability challenge.

The proposal addressed in this Draft Environmental Impact Statement (EIS) is to implement a Mandatory Housing Affordability (MHA) requirement for multifamily residential and commercial development in certain areas of the city. To put MHA in place, the City would grant additional development capacity through area-wide zoning changes and modifications to the Land Use Code. The proposed action includes several related components:

- Adopt requirements in the Land Use Code (SMC Chapter 23) for development meeting certain thresholds either to build affordable housing on-site or to make a payment to support the development of rent- and income-restricted housing.

- Modify development standards in the Land Use Code to provide additional development capacity, such as increases in maximum height and floor area ratio (FAR) limits.

- Make area-wide zoning map changes.

- Expand the boundaries of certain urban villages on the Comprehensive Plan's Future Land Use Map (FLUM) in locations near high-frequency transit, as studied in the Seattle 2035 Comprehensive Plan.

- Modify certain rezone criteria in the Land Use Code and policies in the Neighborhood Plans section of the Comprehensive Plan, concerning single family zoning in urban villages.

Additional development capacity would allow for the construction of more floor area, more housing units, or greater building height and scale compared to what existing regulations allow. In turn, this additional capacity may lead to additional household or job growth compared to the growth that would otherwise occur. Although it brings many benefits to a city, household and job growth can also have impacts to elements of the environment, such as services, transportation, and parks and open space. This Draft EIS evaluates potential environmental impacts associated with alternative approaches to implementing MHA.

STUDY AREA

The study area for this EIS includes existing multifamily and commercial zones in the City of Seattle, areas currently zoned Single Family Residential in existing urban villages, and areas zoned Single Family in potential urban village expansion areas identified in the Seattle 2035 Comprehensive Planning process. The study area does not include the Downtown, South Lake Union, and Uptown Urban Centers; in each of these sub-areas a separate planning processes has implemented or will implement increases development capacity and MHA requirements with its own independent SEPA analysis. The study area also excludes the portion of University Community Urban Center addressed in the University District Urban Design Framework and EIS. A map of the study area is below in Exhibit 2–1.
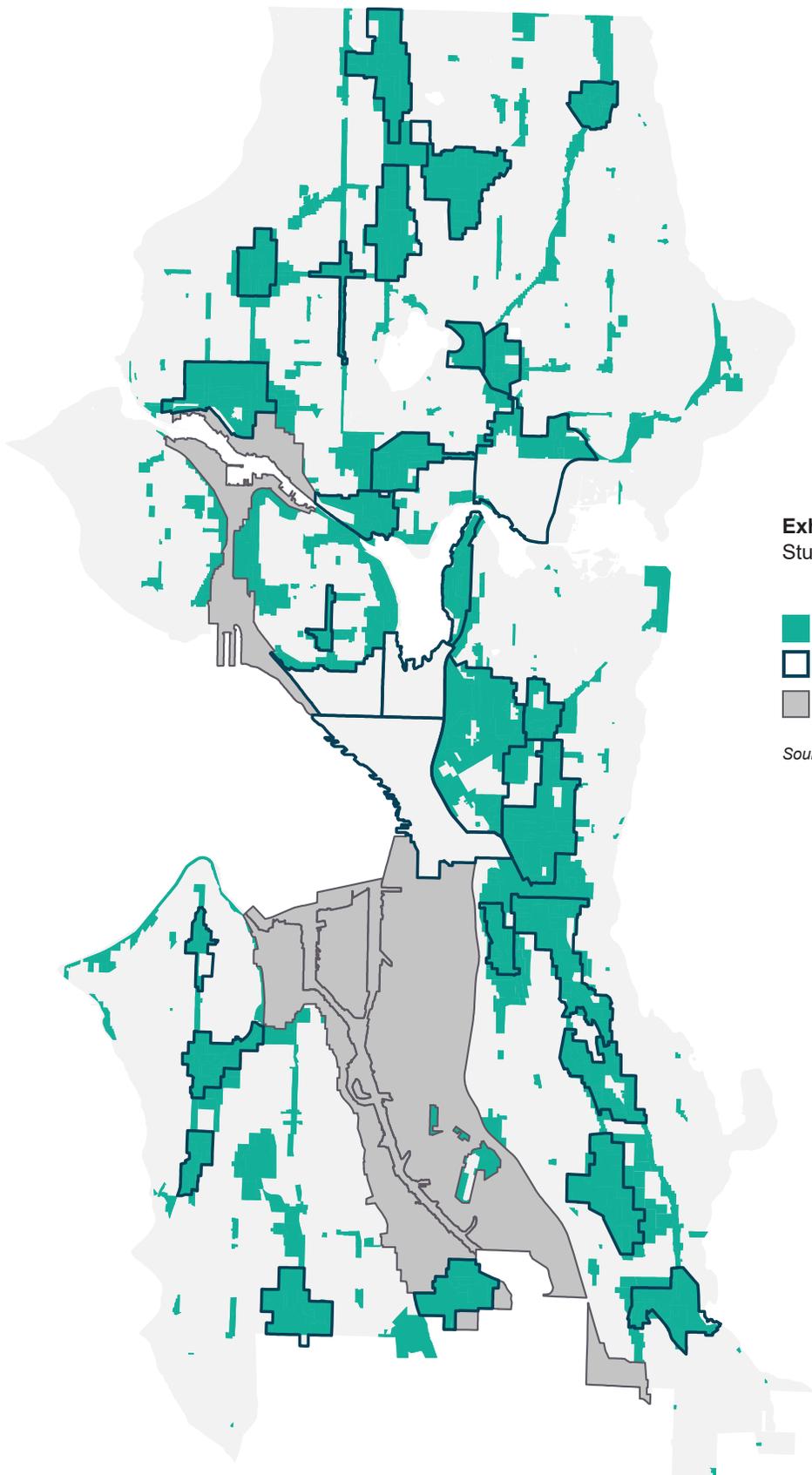
Exhibit 2–1
Study Area

- EIS Study Area
- Urban Village
- Manufacturing & Industrial Center

Source: City of Seattle, 2017.

OBJECTIVES OF THE PROPOSAL

The City's objectives for this proposal are to:

- Address the pressing need for housing affordable and available to a broad range of households.

- Increase overall production of housing to help meet current and projected high demand.

- Leverage development to create at least 6,200 net new rent- and income-restricted housing units serving households at 60 percent of the area median income (AMI) in the study area over a 20-year period.

- Distribute the benefits and burdens of growth equitably.

2.2   PLANNING CONTEXT

SEATTLE 2035 COMPREHENSIVE PLAN AND EIS

The Washington State Growth Management Act (GMA) requires local jurisdictions to adopt and periodically update Comprehensive Plans that plan for the amount of population and employment growth allocated to the jurisdiction by the Washington State Office of Financial Management (OFM). Seattle's Comprehensive Plan, *Seattle 2035*, is a 20-year vision and roadmap for the city's future. Its framework of goals and policies addresses most of Seattle's big-picture decisions on how to grow while preserving and improving quality of life in the city.

In October 2016, the City Council adopted the *Seattle 2035* Comprehensive Plan, a major update to the prior Comprehensive Plan. The City prepared an EIS on the Comprehensive Plan update that evaluated potential environmental impacts of alternative distributions of housing and job growth. The Final EIS was released on May 5, 2016, and, consistent with the provisions of the State Environmental Policy Act (SEPA), is formally adopted in this EIS to provide current and relevant environmental information. The Seattle 2035 Final EIS found a significant unavoidable adverse impact in the area of housing, stating that Seattle would continue to face a housing affordability challenge under all of the alternatives studied. Proposed MHA as evaluated in this EIS, is one action the city is studying to partially mitigate the housing affordability challenge.

The alternatives considered in the Seattle 2035 EIS encompassed alternative approaches to managing future growth patterns within the framework of the Comprehensive Plan's urban village strategy. The
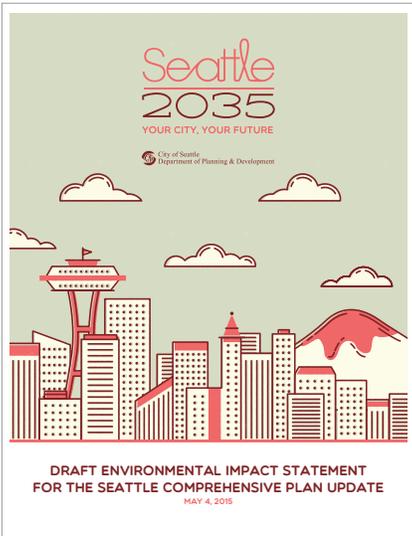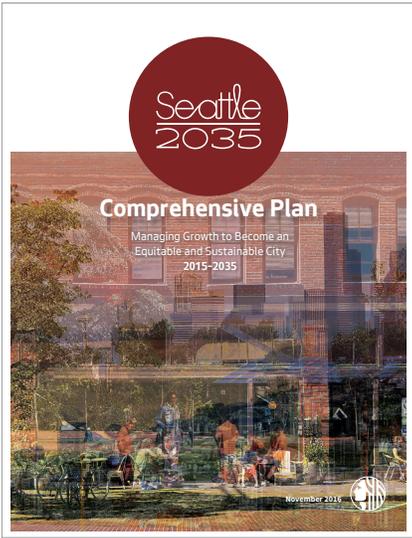
EIS studied potential impacts of four different growth strategies: a no action alternative that anticipated a continuation of growth in a distribution pattern resembling the last 20 years and three action alternatives that represented a range of possible growth distributions, each emphasizing a different pattern of growth that could lead to different implementing actions. Each action alternative and the preferred alternative identified in the Final EIS anticipated growth of 70,000 housing units and 115,000 jobs in Seattle through 2035, the growth target allocated by the King County Countywide Planning Policies and the minimum that Seattle must plan to accommodate.

The Seattle 2035 Final EIS also included a sensitivity analysis that analyzed the impacts of a hypothetical increase of residential growth beyond the growth assumptions of the preferred alternative. The sensitivity analysis evaluated household growth of 100,000 through the year 2035.

The Seattle 2035 Comprehensive Plan and EIS provide key context for the MHA proposed action, and this EIS builds on the prior analysis. For consistency, the MHA EIS uses the same 2035 planning horizon as the Seattle 2035 Comprehensive Plan and EIS. The No Action alternative in this MHA EIS is consistent with the quantity and location of households and jobs anticipated in the adopted Seattle 2035 Comprehensive Plan. The environmental analysis of the No Action alternative in this MHA EIS, therefore, closely parallels the analysis of the preferred alternative of the Seattle 2035 Comprehensive Plan Final EIS. Similarly, the sensitivity analysis from the Seattle 2035 Final EIS, which hypothesized additional growth above the adopted estimates, provides a basis for assumptions in this MHA EIS that identify additional housing and jobs beyond the adopted growth estimate.

GROWTH AND EQUITY ANALYSIS

As a companion document to the Seattle 2035 EIS, the City prepared a *Growth and Equity Analysis* to identify how growth could benefit or burden marginalized populations (Appendix A). The Growth and Equity Analysis examined demographic, economic, and physical factors to evaluate the risk of displacement and access to opportunity for marginalized populations across Seattle neighborhoods.

In September 2016, the City Council passed Resolution 31711, renewing the emphasis on race and social equity in the Comprehensive Plan update and other City actions. The resolution called for reducing racial and social disparities through the City's capital and program investments, achieving equity through growth, and conducting equity analyses when taking policy
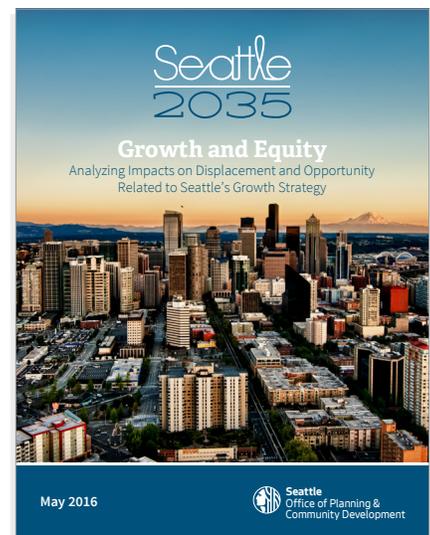
actions. The MHA EIS seeks to achieve these goals by integrating aspects of the Growth and Equity Analysis directly into the formation and environmental analysis of the alternatives studied. Since it is integral to the analysis in this EIS, a discussion of the Growth and Equity Analysis follows.

Growth and Equity Analysis Background

The *Growth and Equity Analysis* considered people and places. It combined a traditional EIS approach of analyzing potential impacts and identifying mitigation with the City's Race and Social Justice Initiative (RSJI). The findings are expressed as the Displacement Risk Index and the Access to Opportunity Index. The Displacement Risk Index identifies areas of Seattle where displacement of marginalized populations may be more likely. The Access to Opportunity Index identifies populations' access to certain key determinants of social, economic, and physical well-being. Together, these indices show that displacement risk varies across Seattle neighborhoods, and key determinants of well-being are not equitably distributed, leaving many marginalized populations without access to factors necessary to succeed and thrive in life.

Displacement Risk

The Displacement Risk Index combines data about demographics, economic conditions, and the built environment into a composite index of displacement risk. It focuses on displacement that affects marginalized populations, defined in Seattle 2035 as people of color, low-income

people, English-language learners, and people with disabilities. It reflects data on vulnerability, amenities, development capacity, and rent to identify where displacement of those populations is more likely to occur.

The vulnerability indicators identify populations less able to withstand housing cost increases and more likely to experience discrimination or other structural barriers to finding new housing. The amenity indicators are factors like access to transit and proximity to certain core businesses that contribute to housing demand. Development capacity is a parcel-level measure of how much development could theoretically occur under current zoning over an indefinite time. Median rent data shows how the cost of housing varies geographically.

Access to Opportunity

The Access to Opportunity Index identifies disparities in access to key determinants of social, economic, and physical well-being. It includes measures related to education, economic opportunity, transit, public services, and public health. Some of the access to opportunity indicators are also factors that increase the potential for displacement, such as proximity to transit and job centers.

Exhibit 2–2 shows areas of the city according to their level of displacement risk, and Exhibit 2–3 shows areas of the city according to their level of access to opportunity. For a complete list of the data used in the Displacement Risk and Access to Opportunity Indices, refer to Appendix A.

Exhibit 2–2
Displacement Risk Index

High Displacement Risk

Low Displacement Risk

Urban Center

Urban Center Village

Hub/Residential Urban Village

Potential Urban Village Expansion Area Studied in Seattle 2035

Manufacturing & Industrial Center

Park

Source: City of Seattle, 2017.
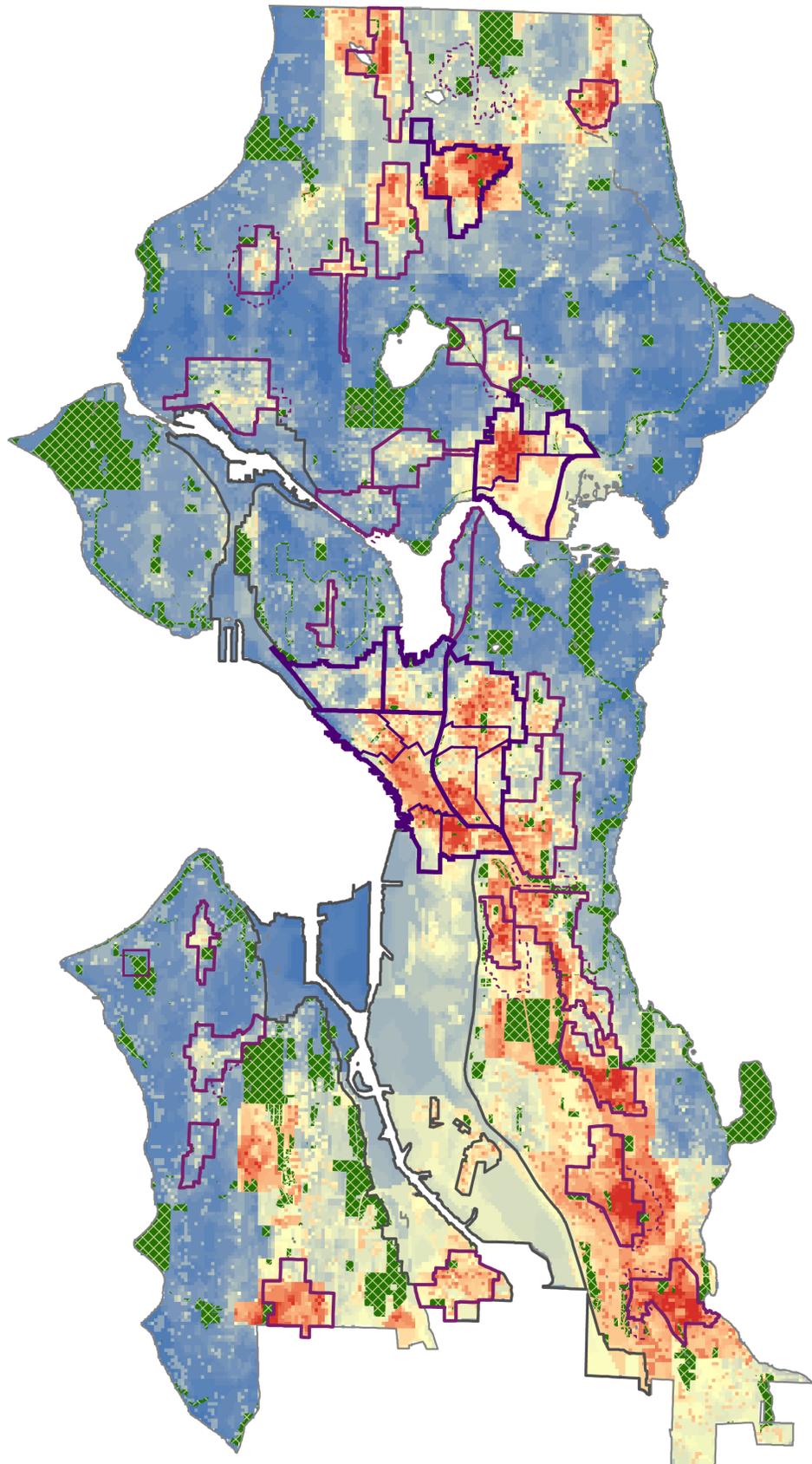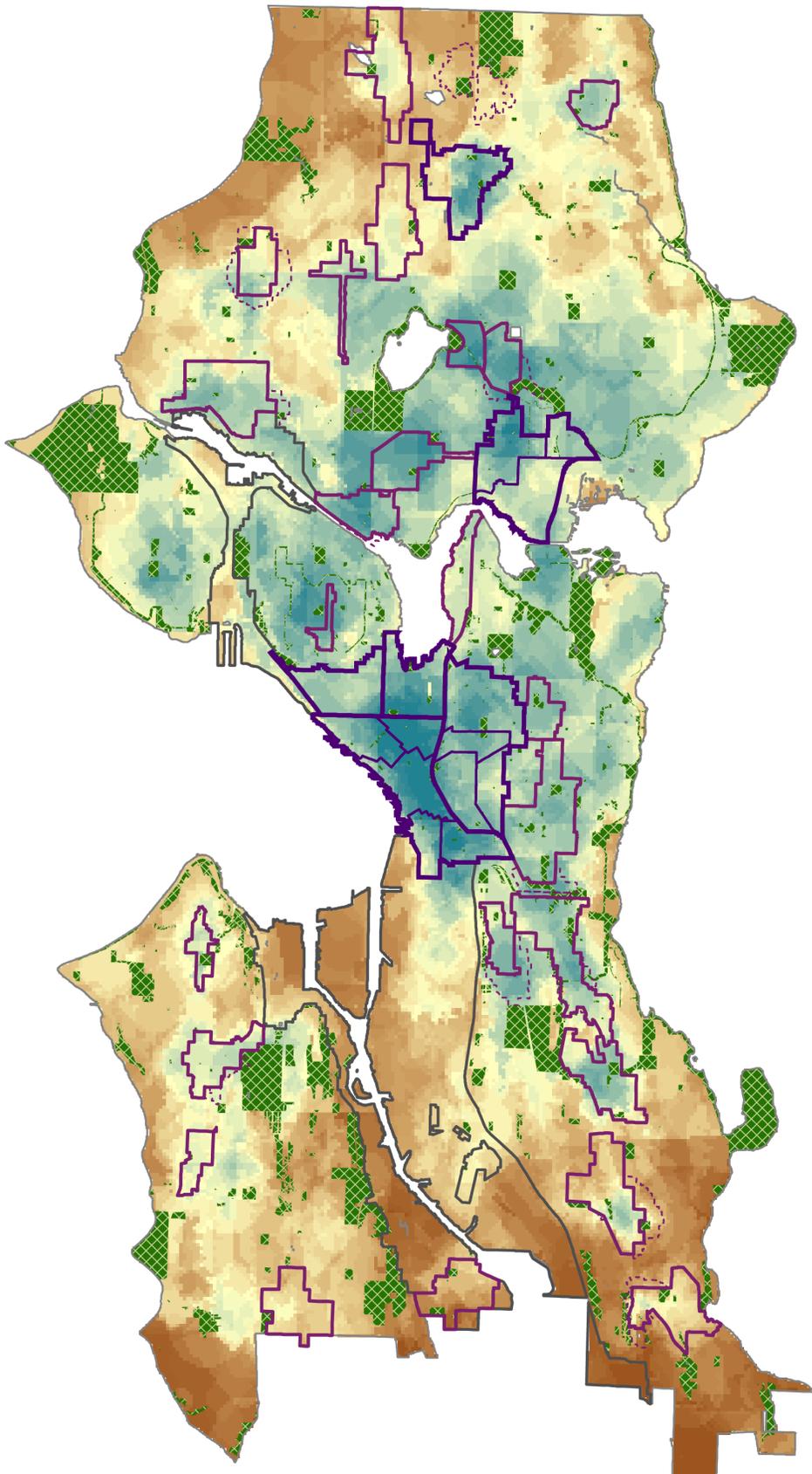
Exhibit 2–3
Access to Opportunity Index

High
Access to
Opportunity

Low
Access to
Opportunity

Urban Center

Urban Center Village

Hub/Residential
Urban Village

Potential Urban Village
Expansion Area Studied
in Seattle 2035

Manufacturing &
Industrial Center

Park

Source: City of Seattle, 2017.

Displacement Risk and Access to Opportunity Typology

Together, these indices characterize whether an urban village has relatively high or low displacement risk and high or low access to opportunity. Viewed as a matrix, the indices create a typology of urban villages according to their relative levels of displacement risk and access to opportunity. As shown in Exhibit 2–4, the Growth and Equity Analysis identifies four categories of urban villages. The categories help identify the potential impacts of future growth and suggest which mitigation measures could address needs and opportunities in different urban villages. The EIS action alternatives (Alternative 2 and Alternative 3) reference this displacement risk and access to opportunity typology.

Exhibit 2–4   Urban Village and Center by Displacement Risk and Access to Opportunity Typology

	Study Area Urban Village or Urban Center	
High Displacement Risk and Low Access to Opportunity	• Rainier Beach • Othello • Westwood-Highland Park	• South Park • Bitter Lake Village
Low Displacement Risk and High Access to Opportunity	• Green Lake • Roosevelt • Wallingford • Upper Queen Anne • Fremont • Ballard • Ravenna	• Madison-Miller • Greenwood-Phinney Ridge • Eastlake • Admiral • West Seattle Junction • Crown Hill
High Displacement Risk and High Access to Opportunity	• Columbia City • Lake City • Northgate • First Hill-Capitol Hill	• North Beacon Hill • North Rainier • 23rd & Union–Jackson
Low Displacement Risk and Low Access to Opportunity	• Aurora–Licton Springs • Morgan Junction	

Source: City of Seattle, 2017.

High Displacement Risk / Low Access to Opportunity

Many of these neighborhoods are transitioning to higher levels of desirability. But some still do not have all the amenities and services found elsewhere in the city. Urban villages in this category are often adjacent to neighborhoods that have already experienced physical and demographic change and will have high potential for displacement as investment and amenities come online in the area.

Low Displacement Risk / High Access to Opportunity

Neighborhoods with low risk of displacement and high access to opportunity are desirable and generally have fewer marginalized populations. These neighborhoods generally already offer good access to economic and educational opportunities. Accordingly, market-rate housing in these neighborhoods tends to be unaffordable to lower-income households. With relatively few marginalized populations, these areas may also lack the cultural services and community organizations geared to those populations. An equitable approach for these neighborhoods would expand pathways into the neighborhood for people who currently cannot afford to live, work, or operate a business there.

High Displacement Risk / High Access to Opportunity

Neighborhoods with high risk of displacement and high access to opportunity are often highly desirable because of the amenities they contain and the relatively lower cost of housing. The desirability of these neighborhoods attracts new development that could displace marginalized populations in these places. An equitable development strategy for these neighborhoods is to stabilize existing marginalized populations while also providing opportunities for economic mobility.

Low Displacement Risk / Low Access to Opportunity

Only a few urban villages fall in this category. These areas could absorb additional growth with minimal displacement risk, but access to opportunity in these places is also limited.

The Growth and Equity Analysis's identification of potential effects on displacement can be used both to measure impacts on marginalized populations and as a policy variable to help shape the how the City implements MHA in different types of neighborhoods.

Seattle Housing Affordability and Livability Agenda

Final Advisory Committee Recommendations
To Mayor Edward B. Murray and the Seattle City Council
July 13, 2015
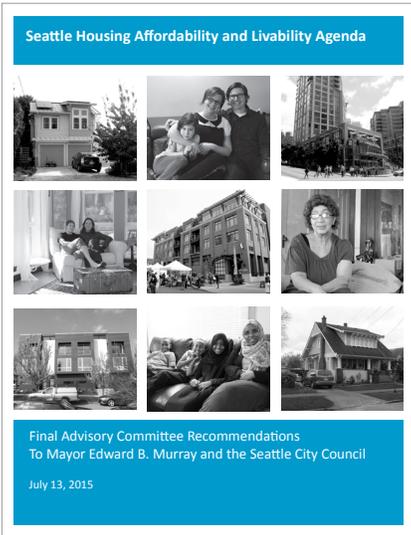
Housing Affordability and Livability Agenda

In September 2014, Mayor Murray and the City Council gathered Seattle leaders to help develop an agenda for increasing the affordability and availability of housing. The City convened a Housing Affordability and Livability Agenda (HALA) Advisory Committee composed of renters and homeowners, for-profit and non-profit developers, and other local housing experts. After months of deliberation, the committee reached consensus and published a report with 65 recommendations to consider. The HALA recommendations include a goal of creating 50,000 new homes over the next decade, including 20,000 new homes for low- and moderate-income people. The goal of 20,000 new homes for low- and moderate-income people would roughly triple the historical annual rate of production of rent- and income-restricted homes.

Following release of the HALA Advisory Committee recommendations, Mayor Murray and the City Council directed City departments to implement many of the recommendations. In October 2015, the Council passed Resolution 31622, declaring their intent to consider many of the HALA recommendations and requesting the State legislature to adopt or modify policies to support affordable housing production and preservation. The resolution established a two-year work plan for community engagement and policy analysis to inform possible Council action on specific implementation actions to address housing affordability and livability.

MHA is one of the 65 recommended HALA implementation actions. As of this writing, MHA has been implemented or is being considered in several geographic sub-areas separate from this proposal. MHA is in effect in portions of the University District that received zoning capacity increases in February 2016 through the City Council's adoption of Ordinance 125267. MHA is also effective in Downtown and South Lake Union (excluding Chinatown–International District) following Council adoption of Ordinance 125291. The Council will likely consider MHA implementation for the Uptown Urban Center in the second quarter of 2017. As identified previously, legislation for each of these sub-areas included its own independent SEPA review.

Other Affordable Housing Funding Sources

Numerous other affordable housing funding sources besides MHA are relevant to this analysis because they can be combined with the MHA payments received by the City to fund new or preserve affordable housing. Federal Low Income Housing Tax Credits (LIHTC) and tax exempt bonds are two critical fund sources expected to be leveraged by

MHA funds to produce affordable housing. Annually, the Seattle Office of Housing (OH) makes funding awards on a competitive basis to affordable housing providers who build and preserve affordable housing.

Availability of LIHTC and tax exempt bonds inform assumptions used in the growth estimates in this EIS about the rate at which MHA payment funds received could be converted to affordable homes. MHA payment funds received are assumed to convert to affordable housing at $80,000 per unit. The actual per-unit physical cost of housing production is likely two to three times higher than this, but the likelihood of combination of MHA funds with the other noted funding sources supports the higher conversion rate.

PUBLIC OUTREACH

The City's public outreach effort for the proposed MHA intends to build awareness of the proposal, identify issues that people are concerned about, and collect feedback on zoning changes and other elements of MHA implementation. The City's engagement has used numerous formats, spanned the entire city, and included both in-person and online engagement. Appendix B includes a draft *Summary of Community Input* that documents this range of engagement and summarizes the themes of community input received. Engagement formats have included:

- Large citywide open house events held at community locations including City Hall, the Museum of History and Industry (MOHAI), public schools, restaurants, and community centers.

- Neighborhood meetings of local community organizations and groups. City staff attended groups' regular meetings to respond to questions and receive individual community input about local areas.

- Consider.it online dialogue. In May 2016, the City posted draft principles about MHA implementation online at HALA.Consider.it, an interactive dialogue and public comment platform. In October 2016, Consider.it hosted draft MHA Implementation maps for all urban villages to create an online dialogue.

- Other digital media. The City gathered input through multiple types of media, including an online HALA-branded website, a project-specific email address (halainfo@seattle.gov), a Facebook Live event, three telephone town halls, and an online newsletter.

- HALA Hotline. Since October 2016, the City has maintained a HALA call-in hotline that residents and stakeholders could use to speak with City staff, receive information about MHA, and provide comment.

- Community Focus Groups consisting of four to six representatives from each urban village and adjacent neighborhood area. The groups met for one year as a sounding board to give focused feedback, particularly on how the MHA program would apply in neighborhood areas.

- Organized in 14 neighborhoods in partnership with the City Council, Community Urban Design Workshops gave communities the opportunity for input on draft MHA zoning maps in a setting and location specific to their neighborhood.

Public input informed the MHA Implementation Principles that contributed to the specific zoning map changes considered in the Action Alternatives. (MHA Implementation Principles are in Appendix C). The comments received also identified areas of concern about potential impacts of the proposal and potential mitigation measures.

Environmental Impact Statement Scoping

The City issued a combined Determination of Significance (DS) and scoping notice on July 28, 2016, requesting public comment on the topics and alternatives to be addressed in the DEIS. The public comment period extended through September 9, 2016. The City solicited scoping comments in written and electronic form. This period included two opportunities for in-person EIS scoping comments held on August 13 at the Rainier Valley Summer Parkways event and August 27 at the Ballard Summer Parkways event. At the in-person events staff were available to describe the EIS process, including proposed topics for analysis, and to ask for comments on issues that should be considered. Appendix D provides the scoping report issued on November 9, 2016, that summarized comments received. This input resulted in several additions to the scope of the EIS analysis, including analysis of greater amounts of estimated growth in the action alternatives, more detailed analysis of potential impacts to tree canopy, and a deeper study of potential displacement.

2.3 PROPOSED ACTION AND ALTERNATIVES

The Draft EIS evaluates three alternatives. None is formally proposed or preferred at this time. The City is using the SEPA process to test and construct a program that will ultimately be proposed for action by the City Council. Modified alternatives and/or a preferred alternative may be identified in the Final EIS. Alternative 1 No Action assumes that MHA is not implemented in the study area; no development capacity increases or area-wide rezones would be adopted. Alternatives 2 and 3 both assume implementation of MHA to achieve the objective of at least 6,200 affordable housing units built in the study area by the year 2035.

Alternatives 2 and 3 differ in the intensity and location of development capacity increases and the patterns and amounts of housing growth across the city that could result. Exhibit 2–5 summarizes overall citywide household growth and the MHA rent- and income-restricted housing generated from growth in the study area in the three alternatives. Appendix 7 summarizes in detail how we model growth under each alternative. The methodology includes estimating total residential and commercial growth in each urban village, estimating MHA affordable housing production that development in each urban village would generate, and modeling for analysis purposes the distribution of affordable housing funded through MHA payments collected from development citywide. Since MHA is in effect or proposed to be implemented in Downtown, South Lake Union, University District, and Uptown through separate actions, Exhibit 2–5 shows that some MHA affordable housing units would be built in the study area using MHA

Exhibit 2–5   20-Year Household Growth and MHA Production

	20-Year Household Growth		MHA or IZ Housing Units	
Alternative 1 No Action	**Comprehensive Plan**	70,000	**Citywide**	5,272
	Citywide	76,746	**Generated from Study Area**	205
	Study Area	45,361	**Built in Study Area**	3,155
Alternative 2 Implement MHA in Study Area	**Comprehensive Plan**	70,000	**Citywide**	11,038
	Citywide	95,342	**Generated from Study Area**	5,717
	Study Area	63,070	**Built in Study Area**	7,513
Alternative 3 Implement MHA in Study Area with Distinctions for Access to Opportunity and Displacement Risk Areas	**Comprehensive Plan**	70,000	**Citywide**	10,903
	Citywide	95,094	**Generated from Study Area**	5,582
	Study Area	62,858	**Built in Study Area**	7,415

Source: City of Seattle Office of Planning and Community Development, 2017.

payments in Alternative 1 No Action. Alternative 1 also includes rent- and income-restricted housing produced through Incentive Zoning (IZ) in the study area under existing regulations. For Alternatives 2 and 3, Exhibit 2–5 includes a distinct estimate of MHA affordable housing generated solely from development in the EIS study area and, separately, an estimate calculated for analysis purposes of affordable housing built in the study area funded through citywide MHA payments.

Each action alternative is associated with a detailed zoning map and a set of urban village boundary expansions. Alternative 1 No Action has no zoning changes and no urban village boundary expansions. Appendix H has maps identifying development capacity increases and urban village expansions for the study area.

Both action alternatives evaluate additional development capacity provided through increases in maximum height and floor area ratio (FAR) limits in commercial and multifamily zones, as well as single-family zones in designated urban villages and urban village expansion areas. Alternatives 2 and 3 differ in their approaches to urban villages according the displacement risk and access to opportunity typology when assigning MHA zoning capacity increases. Alternative 2 assigns specific zoning map changes based on a set of basic planning concepts, policies in the Comprehensive Plan, and MHA Implementation Principles developed during community engagement. However, it does not particularly consider risk of displacement when allocating development capacity increases to individual urban villages. Alternative 3 uses the same guiding concepts, but allocates more or less development capacity based on each urban village's relative level of displacement risk and access to opportunity, as identified in the Growth and Equity Analysis. The intent is to test whether and how the stated policy objective of growing equitably is achieved by directing more growth to areas of opportunity, and moderating growth in areas at high risk of displacement, as well as measuring other potential environmental impacts associated with the amount and location of additional growth.

CALCULATING THE MHA HOUSING PRODUCTION OBJECTIVE

The MHA affordable housing production objective of this proposal—to create at least 6,200 net new rent- and income-restricted units in the study area in 20 years—aligns with other goals for MHA housing production citywide. MHA payments received in one part of the city may be allocated to development of affordable housing in another part of the

city, subject to applicable policies and criteria. Therefore, MHA payment funds generated from outside the study area must be considered when estimating the total amount and distribution of MHA production in the study area for the alternatives.

To estimate the MHA housing production objective, this EIS considered the goal established by the HALA Advisory Committee and subsequent actions by the City Council and Mayor to produce at least 6,000 affordable housing units citywide over 10 years. The MHA production estimated in other environmental documents for the rezoned portions of the University District, Uptown, Downtown, and South Lake Union Urban Centers are subtracted from a citywide goal in order to establish a specific goal for the EIS study area. To use a consistent timeline for environmental analysis, we translate the 10-year housing goals expressed in HALA documents to 20-year goals. To do so, we assume 53 percent of expected housing growth through 2035 will occur in the first 10-year period. This results in an objective of roughly 6,200 rent- and income-restricted homes produced through MHA in the study area alone over a 20-year period.

PROPOSED MHA REQUIREMENTS: COMMON TO THE ACTION ALTERNATIVES

Seattle Municipal Code (SMC) Chapters 23.58.B and 23.58.C contain an adopted framework for the proposed MHA affordable housing requirements. These codes establish many basic program parameters and regulations, such as the income qualifications and duration of affordable housing term. As currently adopted, MHA does not apply anywhere unless and until the City Council adopts legislation for zoning changes to increase development capacity. Both action alternatives assume and reflect the program elements of MHA already established by code.

Developers comply with MHA by either providing affordable housing on-site (performance option) or paying into a fund that OH uses to support the creation and preservation of affordable housing throughout Seattle (payment option). With the performance option, a specific percentage of homes in new multifamily residential buildings are reserved for income-eligible households and have restricted rents. These affordable homes will be comparable to market-rate units (e.g., size, number of bedrooms, and lease terms). With the payment option, developer contributions enable OH to leverage other funds to generate affordable housing through annual competitive funding awards to non-profit housing developers to build or preserve housing.

Zone Categories

Category 1: Single Family, Residential Small Lot

Category 2: Lowrise 1, Lowrise 2

Category 3: Lowrise 3, Neighborhood Commercial 40, Neighborhood Commercial 55

Category 4: Zones with height limits greater than 55' and equal to or less than 95'

Category 5: Zones with heights greater than 95' (requires individual assessment)

MHA requirements are proposed to vary based on (a) specific geographic areas of the city, and (b) the scale of the zoning change. MHA geographic areas are categorized as low, medium, or high based on information about rental housing sub-markets in the Seattle area from Dupre+Scott Apartment Advisors reports. Appendix E provides a map of the low, medium, and high MHA areas, which reflect varying market strength where observed rents are documented to be lower or higher. As shown in Exhibit 2–6, higher MHA requirements would apply in the strong (high) market areas, and lower MHA requirements in weaker (low) market areas. Scaling requirements in this manner is a way to avoid burdening local housing markets and suppressing housing production.

MHA requirements would also vary by the scale of the development capacity increase. Larger development capacity increases (i.e., bigger zoning changes) would result in higher affordable housing requirements. Variation in the requirements would be indicated by an (M), (M1), or (M2) suffix at the end of the zone title that reflects the increment of additional development capacity provided by rezoning. Existing zones are grouped into categories based on their relative development capacity. Zoning changes that result in a change from a lower zone category to a higher zone category will be subject to higher MHA requirements.

Suffixes will be assigned to zoning categories as follows:

Standard (M) suffix. If a zoning change results in a zone in the same category, the new zone will have an (M) suffix. For example, an NC2-40 zone changes to NC2-55 to allow for one additional story of development, so properties there will be zoned NC2-55 (M).

(M1) suffix. If a zoning change results in a zone in the next highest category, the new zone will have an (M1) suffix. For example, a Lowrise 1 zone (Category 2) changes to Lowrise 3 (Category 3), so properties there will be zoned LR3 (M1).

(M2) suffix. If a zoning change results in a zone two or more categories higher, the new zone will have an (M2) suffix. For example, a Single Family zone (Category 1) in an urban village changes to Lowrise 3 (Category 3), so properties there will be zoned LR3 (M2).

Proposed MHA payment and performance requirements common to both action alternatives are shown below. The multifamily performance requirement is the percent of residential units that must be provided as affordable housing, and the payment requirement is a dollar amount per square foot of chargeable gross floor area.

Exhibit 2–6   MHA Performance and Payment Requirements

		LOW AREA		MEDIUM AREA		HIGH AREA	
		%[1]	$[2]	%[1]	$[2]	%[1]	$[2]
Proposed Requirements for Residential and Highrise Commercial							
SCALE OF ZONING CHANGE	**Zones with (M) Suffix**	5%	$7.00	6%	$13.25	7%	$20.75
	Zones with (M1) Suffix	8%	$11.25	9%	$20.00	10%	$29.75
	Zones with (M2) Suffix	9%	$12.50	10%	$22.25	11%	$32.75
Proposed Requirements for Non-Highrise Commercial (up to 95')							
SCALE OF ZONING CHANGE	**Zones with (M) Suffix**	5%	$5.00	5%	$7.00	5%	$8.00
	Zones with (M1) Suffix	8%	$8.00	8%	$11.25	8%	$12.75
	Zones with (M2) Suffix	9%	$9.00	9%	$12.50	9%	$14.50

1 For multifamily residential development, performance requirements are a percentage of residential units that a building must provide as rent-restricted affordable units for income-qualified households. For commercial development, performance requirements are a percentage of chargeable floor area in commercial use that a building must provide as affordable units.

2 Payment requirements are calculated by multiplying the dollar amounts shown in Exhibit 2-6 by the building's total chargeable floor area.

Source: City of Seattle, 2017.

The suffixes indicate a magnitude of zoning capacity increases on any lot, so the quantity and location of (M), (M1) and (M2) designations describe the magnitude of the zoning change in an area. Since the action alternatives vary the location and intensity of development capacity increases, they also vary the number and location of zones with (M), (M1) and (M2) suffixes and, therefore, the amount and location of growth in different urban villages between the alternatives. And, since (M), (M1), and (M2) designations indicate different affordable housing requirements, differing quantities of (M), (M1), and (M2) will also contribute to differing amounts of affordable housing generated from development in urban villages between Alternative 2 and Alternative 3.

Development Capacity Increases to Implement MHA

The proposed action would increase development capacity to implement MHA in several ways: changing development standards in the Land Use Code, changing of a zone designation on the official zoning map, changing certain urban village boundaries on the City's Future Land Use Map (FLUM), and changing policies in the Neighborhood Plans section of the Comprehensive Plan.

Appendix F summarizes the proposed changes to development standards in the Land Use Code, which are common to both action alternatives. Changes include removal of density limits for the Lowrise

1 (LR1) zone; increases in maximum height and FAR limits for Lowrise 2 (LR2), Lowrise 3 (LR3), Midrise (MR), and Highrise (HR) multifamily zones; and increases in maximum height and FAR limits in Neighborhood Commercial (NC), Commercial (C), and Industrial Commercial (IC) zones. Seattle Mixed (SM) zones in the North Rainier Urban Village and near W Dravus St include similar height and FAR increases. Where land use overlays (such as the Station Area Overlay District) modify base development standards in the existing Land Use Code present, the proposed MHA development capacity increases are adjusted accordingly.

Standard Development Capacity Increases

Most proposed zoning capacity increases would allow approximately one additional story of development compared to what existing zoning allows. These one-story zoning capacity increases are referred to as "standard" MHA capacity increases and denoted with an (M) suffix. (In some zones that already allow taller buildings, (M) zoning changes would provide an increase of more than one story in height.) For most zones, the standard capacity increase results from an increase in the maximum height and FAR limits. In certain zones, modifying other standards—such as the maximum density limit or minimum lot size—would provide additional development capacity.

In certain zones, the proposal would modify development standards in the Land Use Code (e.g., a change in the maximum height limit), but the mapped zone designation would remain the same. This would apply to the Lowrise multifamily zones (LR1, LR2, and LR3) and the Midrise and Highrise multifamily zones (MR and HR). Other zones include the height limit as part of the zone name. Therefore, the zoning map would reflect new zone names for Neighborhood Commercial (NC) and Commercial (C) zones. New designations on the zoning map would refer to amended or new development standards in the Land Use Code. For example, an existing Neighborhood Commercial zone with a 65-foot maximum height limit (NC-65) would become a Neighborhood Commercial zone with a 75-foot height limit (NC-75). Concurrently, the Land Use Code would include new NC-75 zone development standards since this variant of NC zoning does not exist today. In all cases, many existing development standards for the zone would be unchanged, while key controls on development capacity are adjusted. Appendix F provides a more complete summary of the proposed Land Use Code changes.

Selective Development Capacity Increases

73 percent of the proposed MHA development capacity increases in Alternatives 2, and 77 percent of the capacity increases in Alternative 3 would fall into the category of standard increases summarized above. In certain instances, the action alternatives include larger zoning increases. These larger increases, referred to as "selective" development capacity increases, would increase zoned capacity by more than one zone category. For example, instead of an NC zone with a 40-foot height limit becoming an NC zone with a 55-foot height limit, the alternative proposes an NC zone with a 75-foot height limit. Selective zoning increases are indicated by an (M1) or (M2) suffix in the zone name and denote higher MHA affordable housing payment or performance requirements.

The alternatives include selective capacity increases where directly supported by a combination of policies in the Comprehensive Plan, basic planning principals and MHA Implementation Principles, and rezone criteria in the Land Use Code. Independent judgement and evaluation by City planning staff was also applied. Concepts used to identify selective capacity increases include.

Planning Principles and Rezone Criteria

- Provide transitions between higher- and lower-scale zones as additional development capacity is accommodated.
- Consider locating more housing near neighborhood assets and infrastructure such as parks, schools, and transit.
- Encourage more small-scale multi-unit housing that is family friendly, such as cottages, duplexes or triplexes, rowhouses, and townhouses.
- Implement the urban village expansions using 10-minute walksheds similar to those shown in the draft Seattle 2035 Comprehensive Plan update.
- Do not increase development capacity in designated Historic Districts, even if it means these areas do not contribute to housing affordability through MHA.
- Ensure that, in general, any development capacity increases in urban village expansion areas are compatible in scale to the existing neighborhood context.

City of Seattle Comprehensive Plan Goals and Policies

- G.S 1.6. Plan for development in urban centers and urban villages in ways that will provide all Seattle households, particularly marginalized populations, with better access to services, transit, and educational and employment opportunities.

- G.S 1.7 Promote levels of density, mixed-uses, and transit improvements in urban centers and villages that will support walking, biking, and use of public transportation.

- G.S. 1.12 Include the area that is generally within a ten-minute walk of light rail stations or very good bus service in urban village boundaries, except in manufacturing/ industrial centers.

- G.S 1.13 Provide opportunities for marginalized populations to live and work in urban centers and urban villages throughout the city by allowing a variety of housing types and affordable rent levels in these places.

- LU G.1 Achieve a development pattern consistent with the urban village strategy, concentrating most new housing and employment in urban centers and villages, while also allowing some infill development compatible with the established context in areas outside centers and villages.

- LU 2.1 Allow or prohibit uses in each zone based on the zone's intended function as described in this Land Use element and on the expected impacts of a use on other properties in the zone and the surrounding area. Generally allow a broad mix of compatible uses in the urban centers and urban villages.

- LU 1.4 Provide a gradual transition in building height and scale inside urban centers and urban villages where they border lower-scale residential areas.

- LU 2.7 Review future legislative rezones to determine if they pose a risk of increasing the displacement of residents, especially marginalized populations, and the businesses and institutions that serve them.

In addition to the principles listed above, direct community input about specific locations in urban villages during public outreach was considered in forming the alternatives.

Estimating Amount and Distribution of Growth for Action Alternatives

The EIS calculates an amount and distribution of household and job growth for a 20-year time horizon for each action alternative. The amount and location of future growth has been estimated using a computer model that considers several variables, including the following key factors:

- The formally adopted Seattle 2035 Comprehensive Plan housing and job growth estimates citywide and in each urban village;

- The increment of land use changes resulting from a specific parcel-based citywide zoning proposal for each alternative;

- Unique baseline conditions in each urban village (e.g., the existing proportions of multifamily and commercially zoned lands);

- The specific parcels most likely to redevelop considering their existing development; and

- Relative market strength in different geographic areas of the city.

Appendix G is a technical memo that describes the modelling methodology and its assumptions.

The model provides growth estimates for each urban village and areas outside urban villages. Distributing growth by urban village facilitates evaluations of varied growth patterns and relative environmental impacts affecting localized areas. Certain urban villages have higher growth estimates under one action alternative compared to the other. Growth for each urban village can also be compared to growth that would occur under Alternative 1 No Action. Exhibit 2–7 summarizes estimated growth amounts for each Alternative, and Exhibit 2–8 shows the estimates as a percentage increase. The resulting variations in growth pattern in urban villages enables analysis of potential impacts associated with different growth levels.

Exhibit 2–7 Residential and Commercial Growth

	URBAN VILLAGE	BASELINE (2016)		ALT. 1 NO ACTION		ALT. 2		ALT. 3	
		Housing	Jobs	Housing	Jobs	Housing	Jobs	Housing	Jobs
Outside EIS Study Area	Downtown	24,347	165,416	13,600	37,100	14,104	37,100	14,088	37,100
	South Lake Union	4,536	40,482	8,500	15,900	8,815	15,900	8,805	15,900
	Uptown	7,483	15,092	3,751	2,800	3,810	2,800	3,806	2,800
	U District[1]	8,181	33,701	5,533	5,000	5,544	5,000	5,538	5,000
High Displacement Risk & Low Access to Opportunity	Rainier Beach	1,520	1,130	500	500	681	568	607	542
	Othello	2,836	1,439	900	800	1,361	832	1,072	829
	Westwood-Highland Park	2,150	1,572	600	100	939	114	790	105
	South Park	1,292	1,355	400	300	646	313	550	313
	Bitter Lake Village	3,257	4,605	1,300	2,300	1,516	2,411	1,501	2,401
Low Displacement Risk & High Access to Opportunity	Green Lake	2,605	1,814	600	150	782	167	1,218	211
	Roosevelt	1,616	1,762	867	500	992	525	1,269	549
	Wallingford	3,222	3,119	1,000	150	1,395	167	2,066	179
	Upper Queen Anne	1,724	1,882	500	30	594	33	643	41
	Fremont	3,200	8,882	1,300	843	1,582	843	2,050	843
	Ballard	9,168	7,861	4,000	3,900	5,467	4,384	5,812	4,411
	Madison-Miller	2,781	1,475	800	500	1,171	570	1,488	679
	Greenwood-Phinney Ridge	1,757	2,067	500	500	604	548	612	558
	Eastlake	3,829	5,774	800	170	1,006	170	1,482	170
	West Seattle Junction	3,880	3,488	2,300	1,700	3,041	1,811	3,351	1,813
	Admiral	1,131	1,468	300	50	375	55	467	68
	Crown Hill	1,307	850	700	100	1,128	111	1,784	159
	Ravenna[2]	1,621	3,559	1,361	3,234	1,703	3,769	1,639	3,521
High Displacement Risk & High Access to Opportunity	Columbia City	2,683	2,672	800	800	1,205	903	1,049	870
	Lake City	2,546	1,533	1,000	800	1,154	833	1,148	830
	Northgate	4,535	12,898	3,000	6,000	4,526	8,367	4,450	8,355
	First Hill-Capitol Hill	29,619	39,987	6,000	3,000	10,283	3,717	7,246	3,413
	North Beacon Hill	1,474	593	400	300	712	312	544	309
	North Rainier	2,454	6,136	1,000	3,100	1,378	3,609	1,267	3,600
	23rd & Union-Jackson	5,451	4,851	1,600	1,000	2,668	1,132	2,195	1,132
Low Displacement Risk & Low Access to Opportunity	Aurora-Licton Springs	3,454	2,319	1,000	600	1,217	633	1,287	658
	Morgan Junction	1,342	579	400	30	746	42	1,086	57
Outside Villages		188,122	85,478	11,433	20,277	14,199	22,848	14,186	22,879
Manufacturing & Industrial Centers (Outside EIS Study Area)	Ballard-Interbay-Northend[3]	660	18,173	0	3,000	0	3,000	0	3,000
	Greater Duwamish	405	65,761	0	6,000	0	6,000	0	6,000
MHA Affordable Homes in EIS Study Area	Generated in Study Area	—	—	205	—	5,717	—	5,582	—
	Built in Study Area	—	—	2,993	—	7,513	—	7,415	—
	TOTAL	232,981	223,877	45,361	51,734	63,070	59,786	62,858	59,496
Citywide	MHA Affordable Homes	—	—	5,272	—	11,038	—	10,903	—
	TOTAL	336,188	549,773	76,746	121,534	95,342	129,586	95,094	129,296

Exhibit 2–8   Percentage Increase in Residential and Commercial Growth Compared to No Action

URBAN VILLAGE	ALT. 2		ALT. 3	
	Housing	Jobs	Housing	Jobs
High Displacement Risk & Low Access to Opportunity	**39%**	**6%**	**22%**	**5%**
Rainier Beach	36%	14%	21%	8%
Othello	51%	4%	19%	4%
Westwood-Highland Park	57%	14%	32%	5%
South Park	62%	4%	37%	4%
Bitter Lake Village	17%	5%	15%	4%
Low Displacement Risk & High Access to Opportunity	**29%**	**12%**	**45%**	**13%**
Green Lake	30%	12%	103%	41%
Roosevelt	14%	5%	46%	10%
Wallingford	39%	11%	107%	20%
Upper Queen Anne	19%	11%	29%	37%
Fremont	22%	0%	58%	0%
Ballard	37%	12%	45%	13%
Madison-Miller	46%	14%	86%	36%
Greenwood-Phinney Ridge	21%	10%	22%	12%
Eastlake	26%	0%	85%	0%
West Seattle Junction	25%	11%	56%	36%
Admiral	32%	7%	46%	7%
Crown Hill	61%	11%	155%	59%
Ravenna[2]	24%	13%	24%	13%
High Displacement Risk & High Access to Opportunity	**59%**	**26%**	**30%**	**23%**
Columbia City	51%	13%	31%	9%
Lake City	15%	4%	15%	4%
Northgate	51%	39%	48%	39%
First Hill-Capitol Hill	71%	24%	21%	14%
North Beacon Hill	78%	4%	36%	3%
North Rainier	38%	16%	27%	16%
23rd & Union-Jackson	67%	13%	37%	13%
Low Displacement Risk & Low Access to Opportunity	**40%**	**7%**	**70%**	**14%**
Aurora-Licton Springs	22%	6%	29%	10%
Morgan Junction	87%	40%	172%	91%
Outside Villages	24%	13%	24%	13%
STUDY AREA TOTAL	**39%**	**16%**	**39%**	**15%**

Source: City of Seattle, 2017.

(1) This is the area receiving MHA development capacity through the U District legislation, outside the study area.

(2) This is the area in the University Community Urban Center that is inside the study area.

(3) 7,000 jobs in addition to the Comprehensive Plan estimate in the table is included for transportation analysis to account for a proposed Expedia campus.

Residential and Commercial Growth Estimate Notes

The following is context for the estimates in Exhibit 2–6:

- Geographies outside the study area are included for background information purposes.

- For estimation purposes, the total amount of MHA payments are assumed to be allocated proportionally to an urban village based on its share of citywide residential growth.

- In Alternative 1, all MHA production comes from areas outside the study area, though some of those MHA payment funds would be allocated to study area urban villages. Alternative 1 also reflects some affordable housing production through the existing IZ program in the study area.

- The assumed amount of housing growth varies slightly for areas outside the study area between Alternative 1 and the action alternatives because a portion of the citywide MHA housing payments would be located in those areas in the action alternatives, subject to allocation policies and criteria.

The analysis chapters of this EIS refer to growth estimates in Exhibit 2–7. Since housing is the primary focus of the action, the discussion of growth often centers on residential growth. The city's largest employment centers (Downtown, South Lake Union, and the Manufacturing/Industrial Centers) are outside the study area, so growth in the study area skews towards housing. Yet Exhibit 2–8 shows that employment growth is also a component of the alternatives. Where residential growth is referred to as a descriptor of growth in analysis chapters, it is understood that employment growth is also considered.

ALTERNATIVE 1
No Action

Under Alternative 1 No Action, MHA would not be implemented in the study area. No area-wide rezones and no development capacity increases would occur. The No Action alternative includes an amount of growth similar to the 20-year minimum growth estimate of 70,000 additional households and 115,000 jobs that must be planned for in the Seattle 2035 Comprehensive Plan.

No affordable housing units would be generated from MHA within the study area. However, the no action alternative includes an estimation of the number of MHA units that would be produced through private development in the Downtown, South Lake Union, University District, and

Uptown subareas. In total, citywide, 5,272 MHA units are expected over 20 years in Alternative 1. MHA payments generated in one part of the city may be allocated to development of affordable housing in another part of the city, subject to applicable Office of Housing policies and criteria. Therefore, MHA payments generated from outside the study area must be considered when estimating the total amount of MHA units produced in the study area. An estimated 2,993 of these MHA units generated by payment from development outside the study area, would be located within the study area in Alternative 1. An additional, 205 affordable housing units would be produced from the existing incentive zoning program in the study area.

No changes to current urban village boundaries are included in Alternative 1, and there would be no change to the Future Land Use map. During the Seattle 2035 Comprehensive Plan, options for expanding several urban village boundaries in proximity to light rail and other very good transit service were identified and studied in environmental documents. However, the studied urban village boundary expansions were not adopted in the final Seattle 2035 Comprehensive Plan. Areas outside of existing urban villages that are zoned Single Family would not experience zoning change under Alternative 1.

Under Alternative 1 growth trends would continue as described in the preferred alternative in the Seattle 2035 Comprehensive Plan FEIS. The types, character and relative geographic distribution of future development are expected to occur in ways that are guided by existing policies and zoning. The pattern of growth is based on the Urban Village and Urban Center strategy. Pursuant to the Seattle 2035 Comprehensive Plan adopted in October of 2016, It guides growth toward urban villages and centers with light rail stations and to places with very good transit service. All new development under Alternative 1 would be subject to existing development standards, and existing regulations.

ALTERNATIVE 2
Implement MHA in the Study Area

Alternative 2 would implement MHA in the study area. Basic planning concepts, MHA Implementation Principles, and guidance from the Comprehensive Plan and Land Use Code have been used to inform the development capacity increases under Alternative 2. The overall pattern and distribution of growth in Alternative 2 follows the Urban Village and Centers growth strategy. Zoning changes and MHA implementation is

directed to Urban Villages and Urban Centers, and the areas zoned for commercial and multifamily development under existing regulations. Under Alternative 2 incrementally greater density of housing and employment would occur within the same overall pattern of the Seattle 2035 Comprehensive Plan.

Appendix H provides a detailed zoning map identifying all the proposed MHA development capacity increases in Alternative 2. Changes to development standards in the Land Use Code for the "standard" zoning capacity increases are included in Alternative 2. Displacement risk and access to opportunity in individual urban villages as identified in the Growth and Equity Analysis would not be considered as explicit factors in selecting the locations of additional growth or zoning designations on the map in Alternative 2.

Alternative 2 proposes urban village boundary expansions approximating a full 10-minute walkshed in 10 urban villages where boundary expansions were proposed in the Seattle 2035 update process, plus a small urban village boundary expansion in Northgate. (Creation of a new urban village at NE 130th St is not proposed as a part of this action.) The Comprehensive Plan FLUM would be modified to reflect larger urban villages in these areas.

Alternative 2 considers the minimum 20-year growth estimates of 70,000 households and 115,000 jobs incorporated in the Seattle 2035 Comprehensive Plan, plus additional housing and job growth given the increased development capacity based on the Alternative 2 zoning map. In Alternative 2, total estimated citywide growth until 2035, including the additional increment of growth associated with MHA, would be 95,342 total housing units, 129,586 jobs, and 11,038 affordable housing units produced through MHA.

Some areas currently zoned Single Family are proposed for MHA and zoning capacity increases in Alternative 2. Rezones of single family areas are limited to single family lands in existing urban villages and in urban village expansion areas. Where single family lands are rezoned, Alternative 2 includes a mix of and Residential Small Lot (RSL) and Lowrise (LR) multifamily zoning.

In Alternative 2, most MHA capacity increases are standard (M) zoning capacity increases, reflecting a single-tier increase in zoned capacity. Approximately 73 percent of all lands proposed for MHA would have an (M) designation, while 23 percent would have (M1) and four percent (M2).

Exhibit 2–9   Approach to MHA Development Capacity Increases, Alternative 2

Displacement Risk and Access to Opportunity	Intensity of Development Capacity Increases and Expansion of Urban Village Boundaries	Urban Villages
Not used explicitly to influence the location and amount of additional growth	Apply development capacity increases using basic planning concepts, Comprehensive Plan policies and Land Use Code criteria, and MHA implementation principles, resulting in a mix of (M), (M1), and (M2) designations. Apply urban village boundary expansions to a full 10-minute walkshed from the frequent transit station.	All Urban Villages *(Boundary expansions apply only to those urban villages identified for possible urban village boundary expansion in Seattle 2035.)*

Source: City of Seattle, 2017.

The proposed zoning and Land Use Code changes would generally continue the overall pattern and distribution of growth anticipated in the Seattle 2035 Comprehensive Plan. In most MHA implementation areas, the location and extent of existing multifamily and commercial zones is not proposed to change, but the scale of already allowed uses in the area would increase incrementally.

ALTERNATIVE 3
Implement MHA with Distinctions for Displacement Risk and Access to Opportunity Areas

Under Alternative 3, specific MHA zoning capacity increases would be based on the guiding principles summarized for Alternative 2 above, plus explicit consideration of each urban village's location on the Displacement Risk and Access to Opportunity typology identified in the Growth and Equity Analysis. Equitable development approaches identified in the Growth and Equity Analysis are considered in the assignment of development capacity increases and the urban village boundary expansions for specific locations.

In general, areas of higher opportunity were considered for greater development capacity increases in order to increase the potential for housing opportunities and inclusion of affordable housing. Simultaneously, areas with high risk of displacement were considered for smaller development capacity increases in order to minimize the potential for displacement. Exhibit 2–10 summarizes how displacement risk and access to opportunity type influence Alternative 3. Appendix H provides a detailed zoning map with MHA development capacity increases associated with Alternative 3.

Exhibit 2–10   Approach to MHA Development Capacity Increases, Alternative 3

Displacement Risk and Access to Opportunity	Intensity of Development Capacity Increases and Expansion of Urban Village Boundaries	Urban Villages
High Displacement Risk and Low Access to Opportunity	Apply small development capacity increases resulting in a high proportion of MHA (M) designations, with limited instances of (M1), and no (M2) designations. Apply reduced urban village boundary expansions to a 5-minute walkshed or less from the frequent transit station.	• Rainier Beach* • Othello* • Westwood–Highland Park • South Park • Bitter Lake
Low Displacement Risk and High Access to Opportunity	Apply large development capacity increases, resulting in a high proportion of MHA (M1) and (M2) designations, along with some (M) designations. Apply full urban village boundary expansions to a 10-minute walkshed from the frequent transit station.	• Green Lake • Roosevelt* • Wallingford • Upper Queen Anne • Fremont • Ballard* • Madison–Miller • Greenwood–Phinney Ridge • Eastlake • Admiral • West Seattle Junction* • Crown Hill* • Ravenna
High Displacement Risk and High Access to Opportunity	Apply medium development capacity increases, resulting in a significant proportion of (M) zoning changes, but also resulting in some (M1) designations and limited instances of (M2) designations. Apply reduced urban village boundary expansions to a 5-minute walkshed or less from the frequent transit station.	• Columbia City* • Lake City • Northgate • First Hill–Capitol Hill • North Beacon Hill* • North Rainier* • 23rd & Union–Jackson*
Low Displacement Risk and Low Access to Opportunity	Apply medium development capacity increases, resulting in a significant proportion of (M) zoning changes, but also resulting in some (M1) designations and limited instances of (M2) designations. Apply full urban village boundary expansions to a 10-minute walkshed from the frequent transit station.	• Aurora–Licton Springs • Morgan Junction

* Includes a proposed urban village expansion.

Source: City of Seattle, 2017.

Alternative 3 assumes the minimum 20-year growth estimates of 70,000 households and 115,000 jobs from Seattle 2035, plus additional growth associated with increased development capacity based on the Alternative 3 zoning map. In Alternative 3, estimated total growth in 2035—including MHA housing units and an additional assumed increment of growth—is 95,094 total housing units, 128,296 jobs, and 10,903 affordable housing units produced through MHA.

Alternative 3 would expand the boundaries of 10 urban villages and modify the Future Land Use map to reflect the larger urban villages. However, expansion areas for urban villages with high displacement risk are reduced from a 10-minute to a 5-minute approximate walkshed from the transit node. This results in smaller urban village boundary expansions for Rainier Beach, Othello, North Rainier, North Beacon Hill, and 23rd & Union–Jackson in Alternative 3 compared to Alternative 2.

South Park is an area with high displacement risk and low access to opportunity. It is unique among urban villages because it is nearly surrounded by a Manufacturing and Industrial Center. In recognition of unique conditions and its displacement risk and access to opportunity category, a portion of South Park would not have MHA implementing zoning changes under Alternative 3.

The proposed zoning and Land Use Code changes would generally continue the overall pattern and distribution of growth anticipated in the Seattle 2035 Comprehensive Plan. In most MHA implementation areas, the location and extent of existing multifamily and commercial zones is not proposed to change, but the scale of already allowed uses in the area would be allowed to increase incrementally. The overall urban village land use pattern would not be altered, with the exception of urban village expansions studied in the Seattle 2035 planning process. Compared to Alternative 1 No Action, the intensity of uses and rate of growth within the planned land use pattern would increase incrementally.

As in Alternative 2, most development capacity increases in Alternative 3 are single-tier (M) zoning changes. 77 percent of all lands proposed for MHA have an (M) designation, while 20 percent would have (M1) and three percent (M2). However, while overall percentages of (M), (M1), and (M2) zoning designations are similar to Alternative 2, the distribution of those designations varies substantially based on consideration of Displacement Risk and Access to Opportunity, as seen in the following figures.

Exhibit 2–11
High Displacement Risk and Low Access to Opportunity Areas
Redevelopable Parcel Land Area by MHA Tier

5%
Tier M2

26%
Tier M1

644 Acres
Redevelopable
Parcel Land
Area

Alt. 2

69%
Tier M

6%
Tier M1

<1%
Tier M2

560 Acres
Redevelopable
Parcel Land
Area

Alt. 3

93%
Tier M
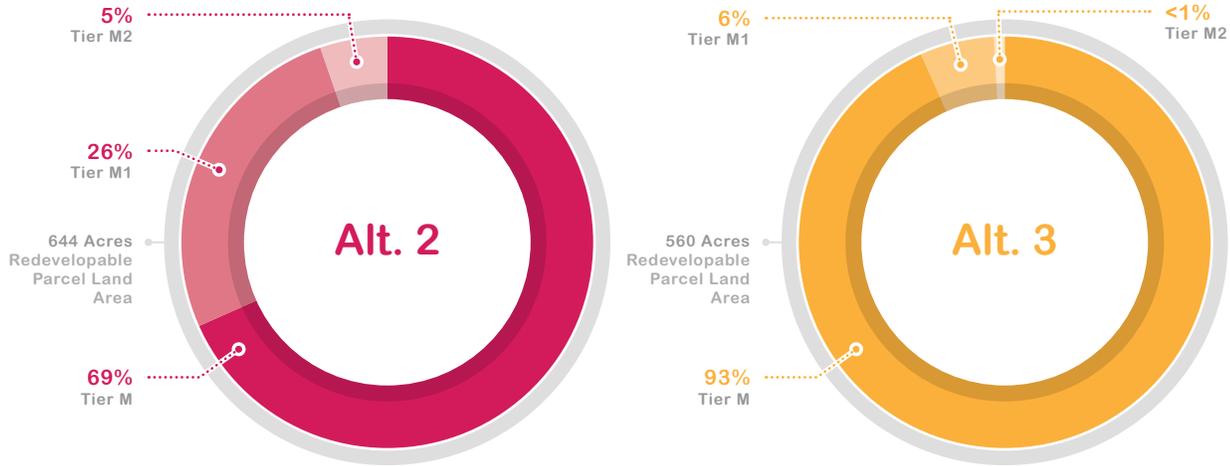
Rainier Beach, Othello, Westwood-Highland Park, South Park, Bitter Lake Village
Source: City of Seattle, 2017.

In urban villages with high displacement risk and low access to opportunity, Alternative 3 has a significantly lower percentage of redevelopable land in the selective (M1) and (M2) designations, compared to Alternative 2. Considering the high displacement risk, the intensity of development capacity increases is reduced in these areas in Alternative 3. For urban villages, the major differences in Alternative 3, compared to Alternative 2, are:

• Smaller urban village boundary expansions.

• In areas of existing Single Family zoning, fewer applications of the Lowrise 1 (LR1) and Lowrise 2 (LR2) multifamily zones and more application of the Residential Small Lot (RSL) zone.

• In South Park, retention of Single Family zoning without MHA in a portion of the urban village.

• Fewer instances of height increases greater than one story in Commercial or Neighborhood Commercial zones.

Exhibit 2–12
Low Displacement Risk and High Access to Opportunity Areas
Redevelopable Parcel Land Area by MHA Tier

1%
Tier M2

21%
Tier M1

545 Acres
Redevelopable
Parcel Land
Area

Alt. 2

77%
Tier M

8%
Tier M2

47%
Tier M1

45%
Tier M

697 Acres
Redevelopable
Parcel Land
Area

Alt. 3
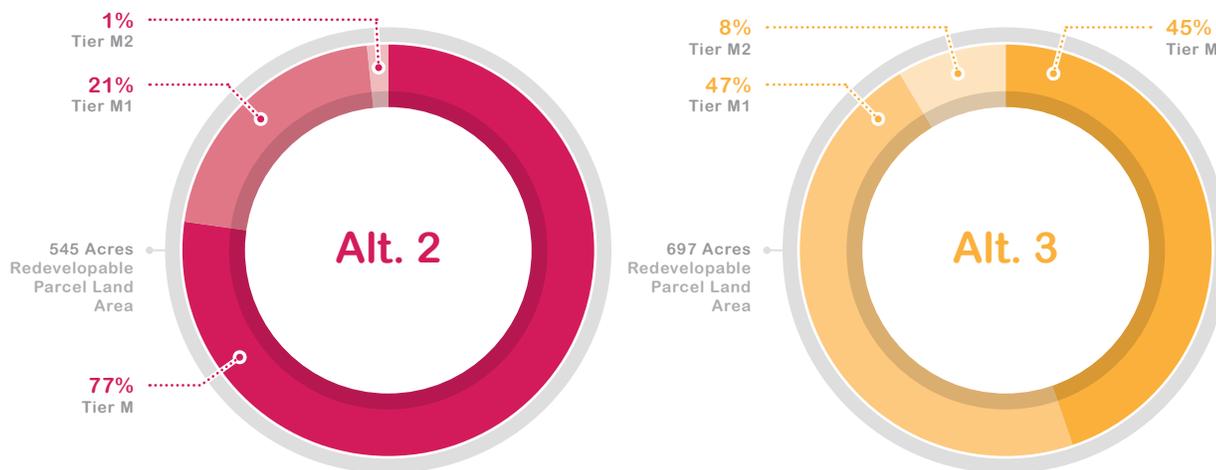
Green Lake, Roosevelt, Wallingford, Upper Queen Anne, Fremont, Ballard, Madison-Miller, Greenwood-Phinney Ridge, Eastlake, Admiral, West Seattle Junction, Crown Hill, Ravenna
Source: City of Seattle, 2017.

In urban villages with low displacement risk and high access to opportunity, more land would have selective (M1) and (M2) capacity increases in Alternative 3 than in Alternative 2. This approach represents an equitable development strategy, which makes implementation decisions that would result in relatively more housing opportunity and generate more MHA affordable housing units in these neighborhoods.

For these urban villages in Alternative 3, major differences compared to Alternative 2 are:

- Larger urban village boundary expansions.
- In areas of existing Single Family zoning, more applications of the Lowrise 1 (LR1) and Lowrise 2 (LR2) multifamily zones, some instances of Lowrise 3 (LR3) application, and fewer applications of the Residential Small Lot (RSL) zone.
- More instances of height increases greater than one additional story in Commercial or Neighborhood Commercial zones.

Exhibit 2–13
High Displacement Risk and High Access to Opportunity Areas
Redevelopable Parcel Land Area by MHA Tier

3%
Tier M2

35%
Tier M1

834 Acres
Redevelopable
Parcel Land
Area

Alt. 2

62%
Tier M

12%
Tier M1

<1%
Tier M2

700 Acres
Redevelopable
Parcel Land
Area

Alt. 3

88%
Tier M
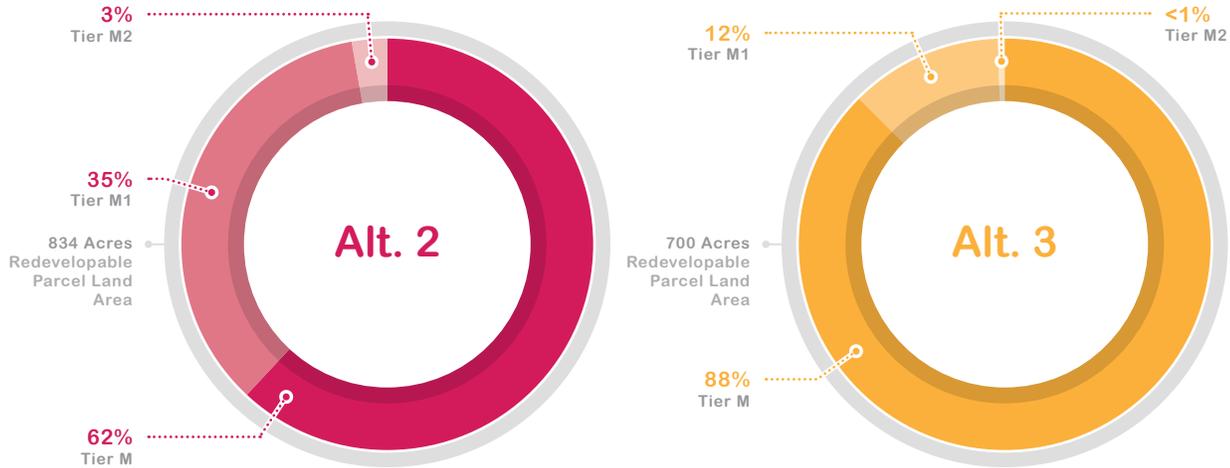
Columbia City, Lake City, Northgate, First Hill–Capitol Hill, North Beacon Hill, North Rainier, 23rd & Union–Jackson
Source: City of Seattle, 2017.

In urban villages with high displacement risk and high access to opportunity, smaller percentages of redevelopable lands have selective (M1) and (M2) capacity increases in Alternative 3 compared to in Alternative 2. This reflects intentional reductions in capacity increases in light of the high risk of displacement in these areas. However, Alternative 3 also considers the relatively higher levels of access to opportunity in these neighborhoods.

Compared to Alternative 2, in Alternative 3, these urban villages have:

- Smaller urban village boundary expansions.
- In areas of existing Single Family zoning, fewer applications of the Lowrise 1 (LR1) and Lowrise 2 (LR2) multifamily zones, and more applications of the Residential Small Lot (RSL) zone.
- Fewer applications of the Midrise (MR) residential, particularly in First Hill–Capitol Hill.
- Fewer instances of height increases greater than one additional story in Commercial or Neighborhood Commercial zones.

Exhibit 2–14
Low Displacement Risk and Low Access to Opportunity Areas
Redevelopable Parcel Land Area by MHA Tier

0%
Tier M2

35%
Tier M1

154 Acres
Redevelopable
Parcel Land
Area

Alt. 2

65%
Tier M

9%
Tier M2

36%
Tier M

168 Acres
Redevelopable
Parcel Land
Area

Alt. 3

55%
Tier M1
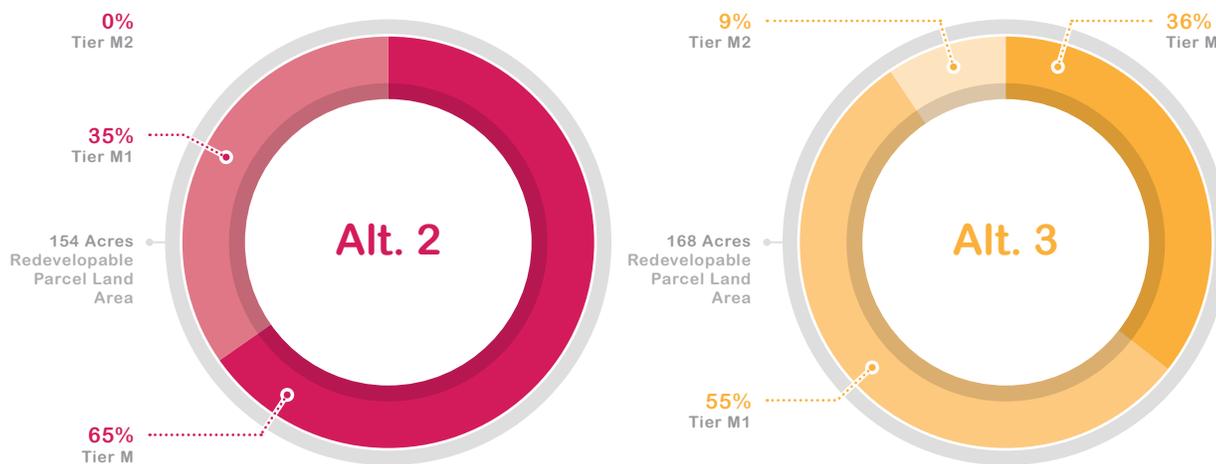
Aurora–Licton Springs, Morgan Junction
Source: City of Seattle, 2017.

In areas with low displacement risk and low access to opportunity, greater percentages of redevelopable lands have (M1) and (M2) capacity increases in Alternative 3 compared to Alternative 2. These neighborhoods have the potential to accommodate new housing without triggering strong displacement pressure.

For these urban villages, In Alternative 3, compared to Alternative 2, there are:

- In areas of existing Single Family zoning, more applications of the Lowrise 1 (LR1) and Lowrise 2 (LR2) multifamily zones, and fewer applications of the Residential Small Lot (RSL) zone.

- More instances of height increases greater than one additional story in Commercial or Neighborhood Commercial zones, especially in the Aurora-Licton Spring urban village.

MHA Affordable Unit Production in Action Alternatives

The location and pattern of the development capacity increases would vary between the Action Alternatives, as would the quantities of MHA affordable housing units. Exhibit 2–15 summarizes the estimates of MHA housing assumed to be built on-site through performance and the generated through payment in urban villages in the different Displacement Risk and Access to Opportunity categories.

Exhibit 2–15   Action Alternative MHA Affordable Housing Performance and Payment Units

	MHA PERFORMANCE UNITS		MHA UNITS BUILT WITH PAYMENTS*	
	Alt 2	**Alt. 3**	**Alt. 2**	**Alt. 3**
High Displacement Risk and Low Access to Opportunity	115	86	505	439
Low Displacement Risk and High Access to Opportunity	390	584	1,947	2,319
High Displacement Risk and High Access to Opportunity	528	339	2,105	1,693
Low Displacement Risk and Low Access to Opportunity	53	76	193	230
Outside of Urban Villages	284	271	1,393	1,377

* Assumes MHA payments are allocated proportional to areas based on share of citywide housing growth.
Source: City of Seattle, 2017.

Urban Village Expansion Areas

The proposed action includes urban village boundary expansions studied in the Seattle 2035 Comprehensive Plan process. Under the proposal, expansion areas would have the Urban Village designation on the FLUM. (This action would be docketed and considered as part of a future Comprehensive Plan amendment.) The proposal includes zoning changes to increase development capacity and implement MHA in these areas. Current zoning is Single Family in much of the urban village boundary expansion areas. Land use patterns would be expected to change over time to allow a wider variety of housing types, including multifamily housing. These rezoned urban village expansion areas would experience a notable change in land use form and intensity over the study horizon and are analyzed in this EIS.

The following figures summarize the proposed urban village boundary expansions in the Action Alternatives. As noted above, the expansions vary according to whether or not Displacement Risk and Access to Opportunity were considered in the alternative.

Alternative 2

Alternative 3

Exhibit 2–16
Proposed Urban Village Boundary Expansions Action Alternatives: Rainier Beach
(High Displacement Risk and Low Access to Opportunity)

The Rainier Beach urban village boundary would expand by 70 acres in Alternative 2 and 16 acres in Alternative 3. The expansion area is near the light rail station at South Henderson Street. In Alternative 2 the expansion approximates a 10-minute walkshed from the transit station and in Alternative 3 the expansion is reduced to an approximate 5-minute walkshed.

Source: City of Seattle, 2017.

Alternative 2

Alternative 3

Exhibit 2–17
Proposed Urban Village Boundary Expansions Action Alternatives: Othello
(High Displacement Risk and Low Access to Opportunity)

The Othello Urban Village boundary would expand by 193 acres in Alternative 2 and 27 acres in Alternative 3. In Alternative 2 the expansion area is an approximate 10-minute walkshed near the existing light rail station at South Othello Street the planned future light rail station at South Graham Street. In Alternative 3, the expansion approximates a 5-minute walkshed from the existing light rail station at St Othello St only.

Source: City of Seattle, 2017.

Alternative 2 **Alternative 3**

Exhibit 2–18
Proposed Urban Village Boundary Expansions Action Alternatives: Roosevelt
(Low Displacement Risk and High Access to Opportunity)

The Roosevelt Urban Village boundary would expand by four acres in Alternative 2 and 17 acres in Alternative 3. The expansion area is near the light rail station at NE 65th St. In Alternative 2 the expansion is smaller than the approximated 10-minute walkshed and includes only two blocks along the west side of 15th Ave NE. In Alternative 3, the expansion approximates a 10-minute walkshed and encompasses five blocks fronting NE 65th St west of 15th Ave NE.

Source: City of Seattle, 2017.
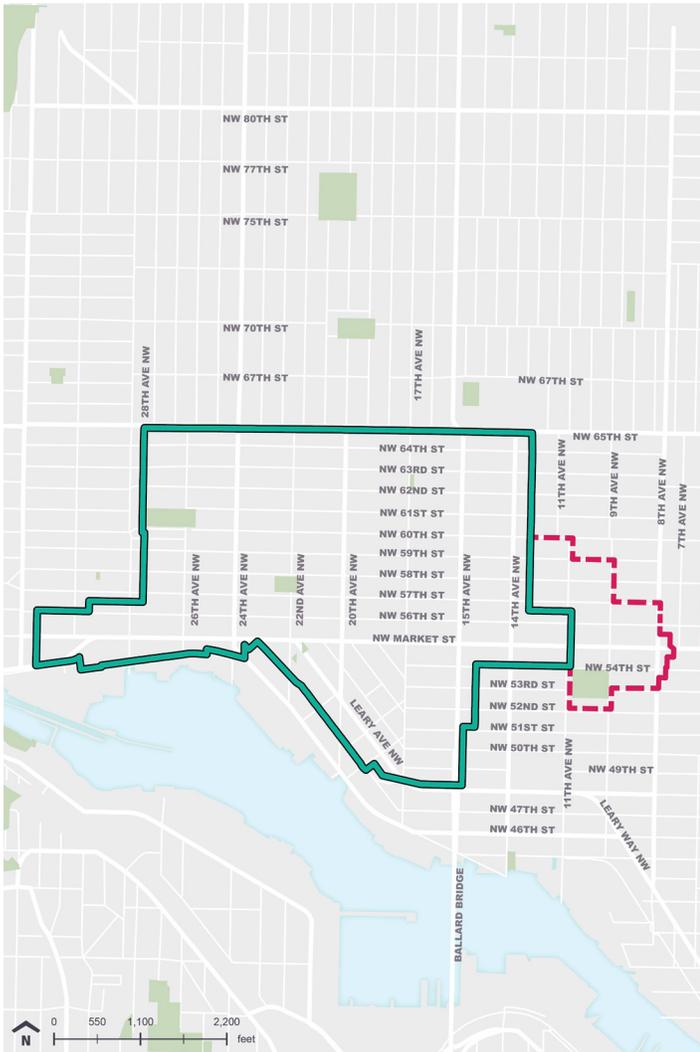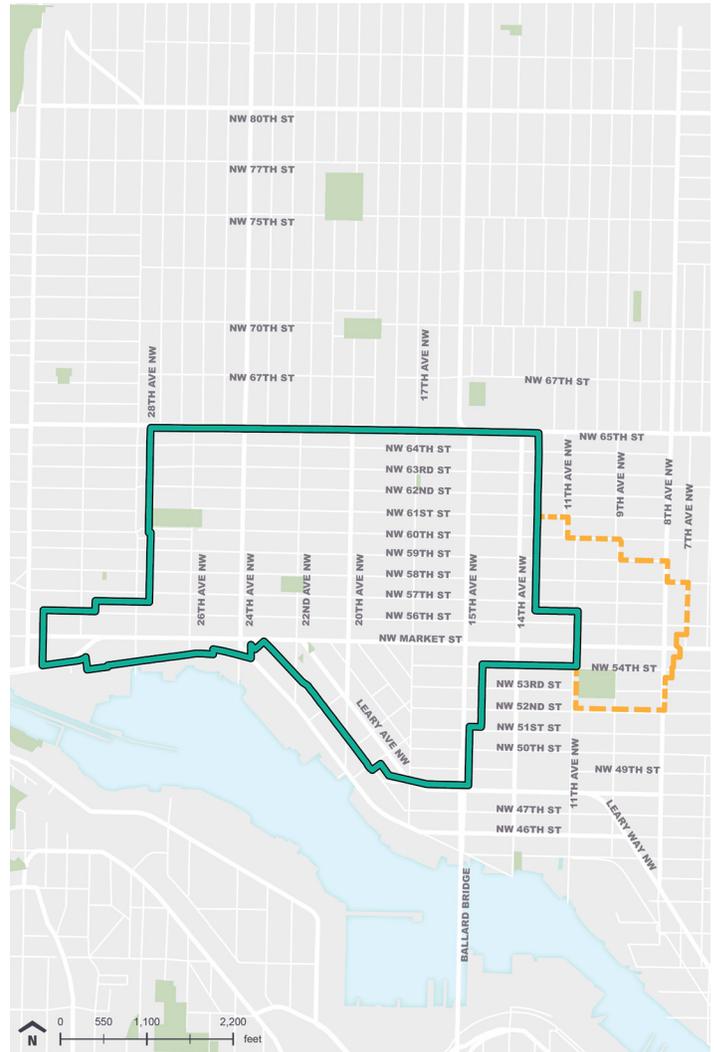
Alternative 2

Alternative 3

Exhibit 2–19
Proposed Urban Village Boundary Expansions Action Alternatives: Ballard
(Low Displacement Risk and High Access to Opportunity)

The Ballard Urban Village boundary would expand by 35 acres in Alternative 2 and 48 acres in Alternative 3. The expansion area surrounds existing high-frequency bus transit at 15th Ave NW and anticipates the future Ballard light rail station planned for this neighborhood. In Alternative 2, the expansion is smaller than the approximated 10-minute walkshed, and in Alternative 3 the expansion approximates a 10-minute walkshed. The expansion excludes land in the designated Manufacturing and Industrial Center.

Source: City of Seattle, 2017.
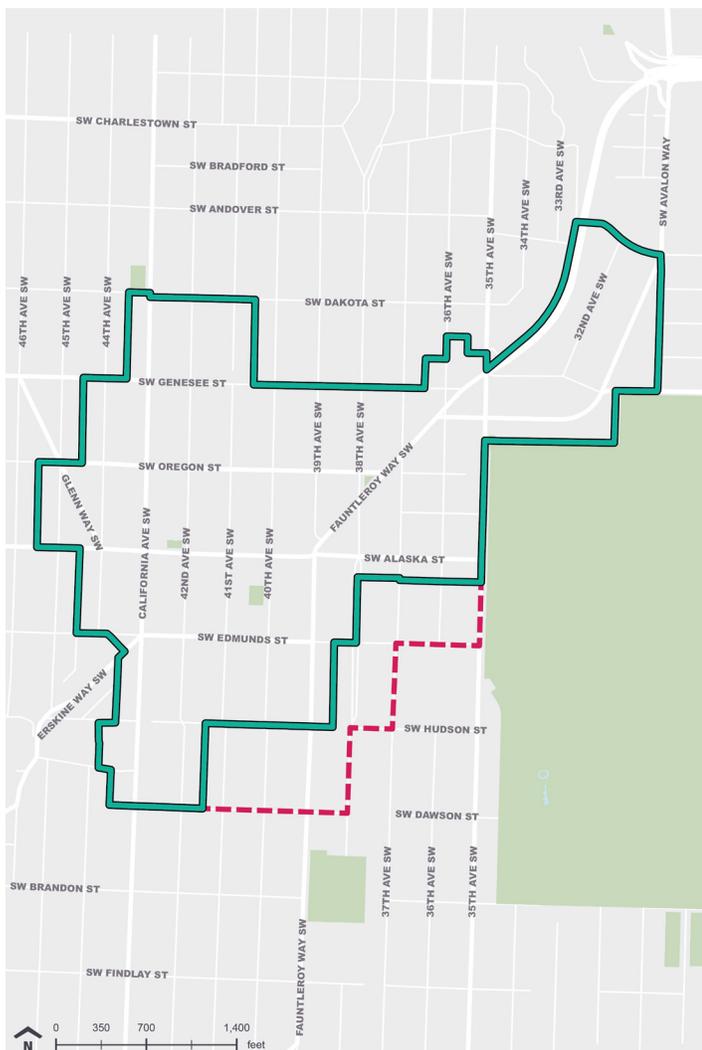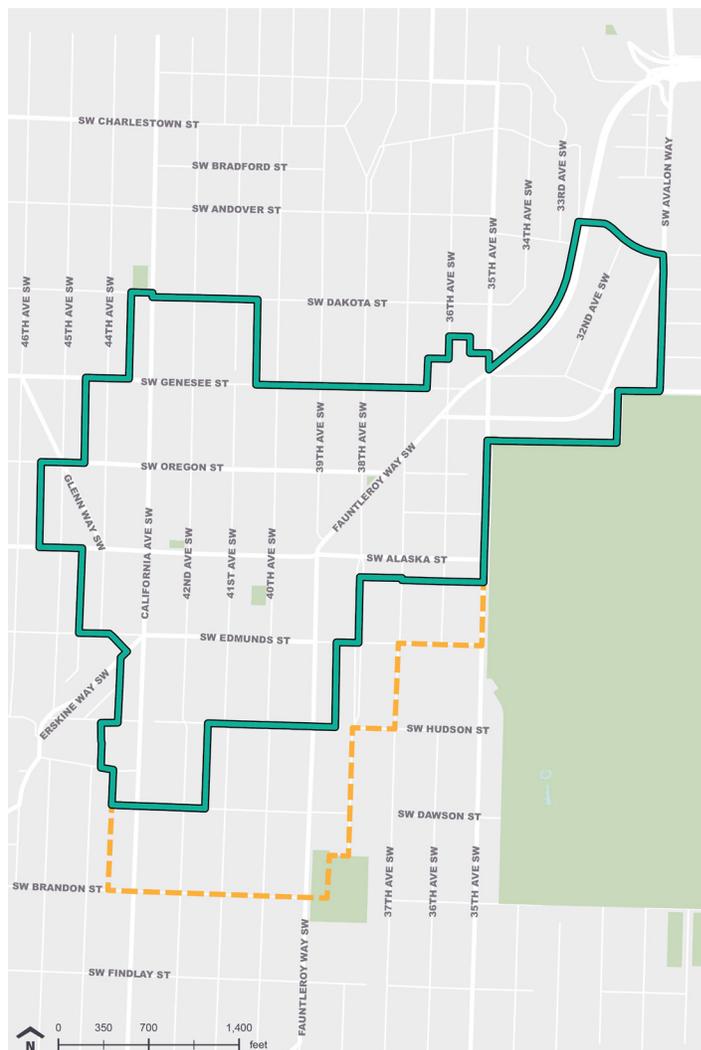
Alternative 2

Alternative 3

Exhibit 2–20
Proposed Urban Village Boundary Expansions Action Alternatives: West Seattle Junction
(Low Displacement Risk and High Access to Opportunity)

The West Seattle Junction Urban Village boundary would expand by 24 acres in Alternative 2 and 47 acres in Alternative 3. The expansion area is near the existing high-frequency bus transit service node at Fauntleroy Way SW and SW Alaska St and anticipates future addition of light rail in the neighborhood. In Alternative 2 the expansion is less than the approximated 10-minute walkshed from the transit node, and in Alternative 3 the expansion approximates the 10-minute walkshed.

Source: City of Seattle, 2017.
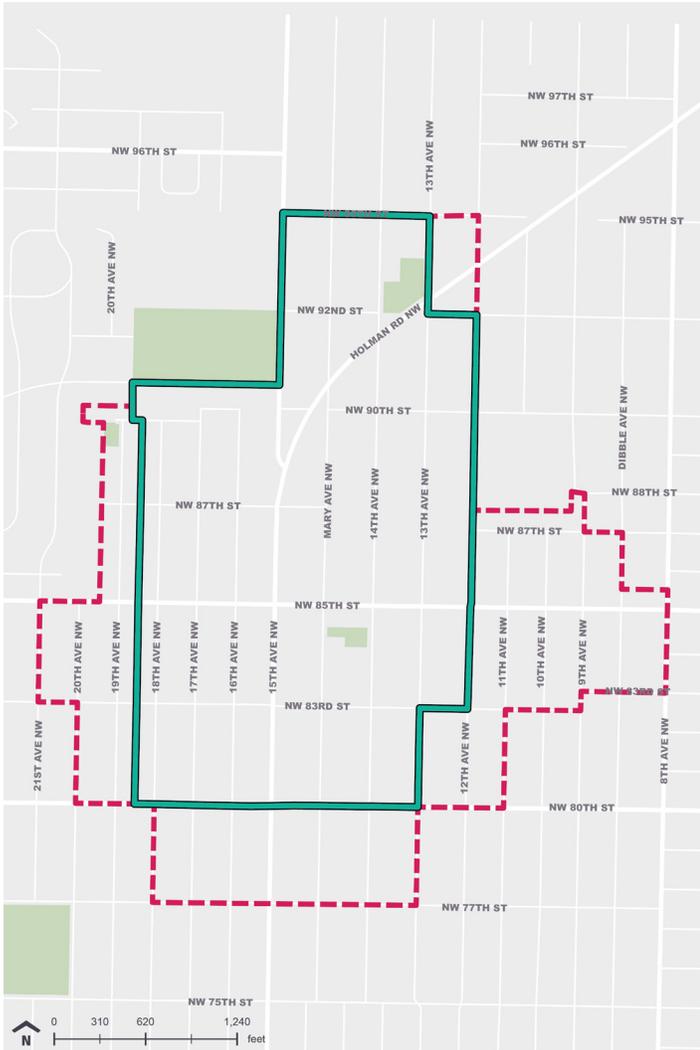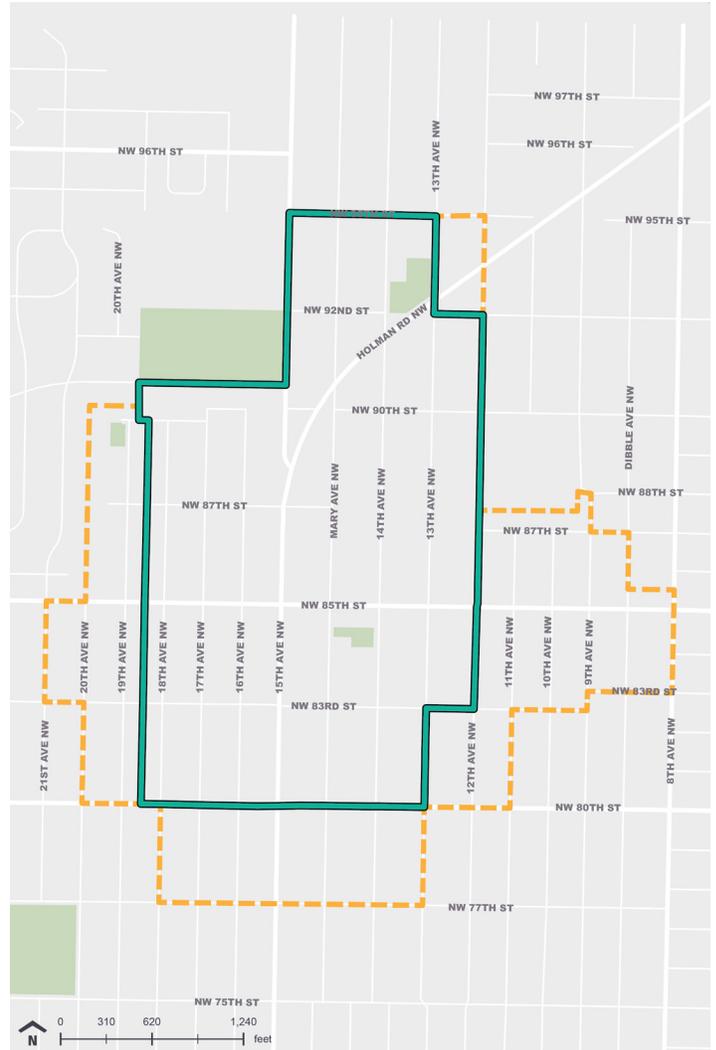
Alternative 2

Alternative 3

Exhibit 2–21
Proposed Urban Village Boundary Expansions Action Alternatives: Crown Hill
(Low Displacement Risk and High Access to Opportunity)

The Crown Hill Urban Village boundary would expand by 80 acres in Alternative 2 and 84 acres in Alternative 3. The expansion area is near the existing high-frequency bus transit service node at NW 85th St and 15th Ave NW. The proposed expansion approximates the 10-minute walkshed in both alternatives but is reduced at 20th Ave NW and in Alternative 3.

Source: City of Seattle, 2017.
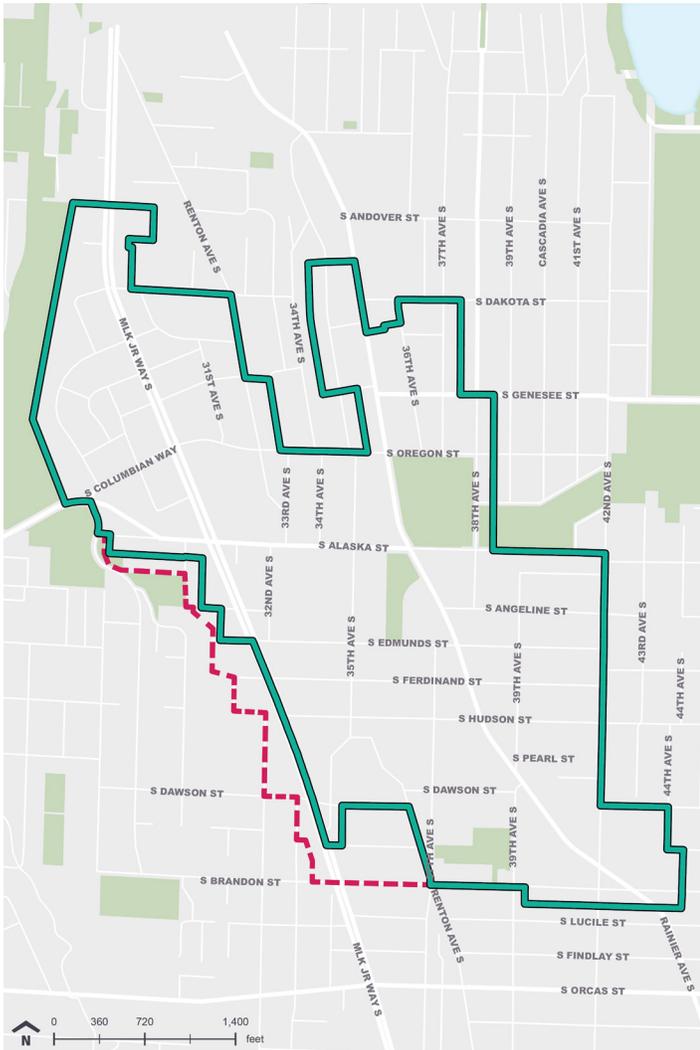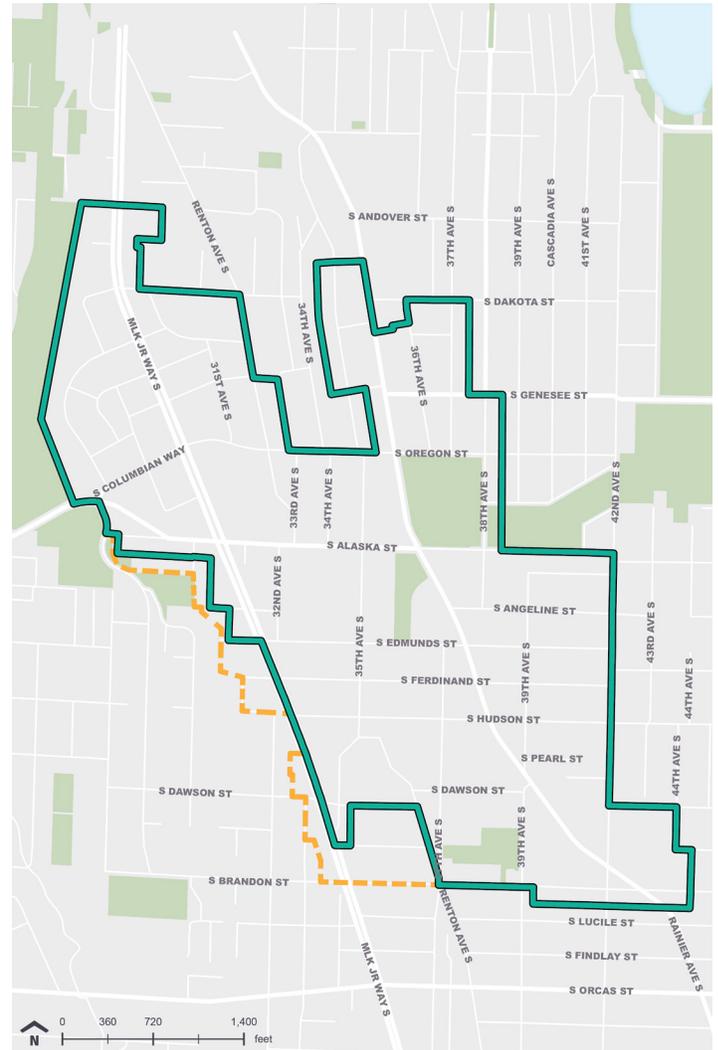
Alternative 2

Alternative 3

Exhibit 2–22
Proposed Urban Village Boundary Expansions Action Alternatives: Columbia City
(High Displacement Risk and High Access to Opportunity)

The Columbia City Urban Village boundary would expand by 23 acres in Alternative 2 and 17 acres in Alternative 3. The expansion area is near the light rail station at S Edmunds St.

Source: City of Seattle, 2017.
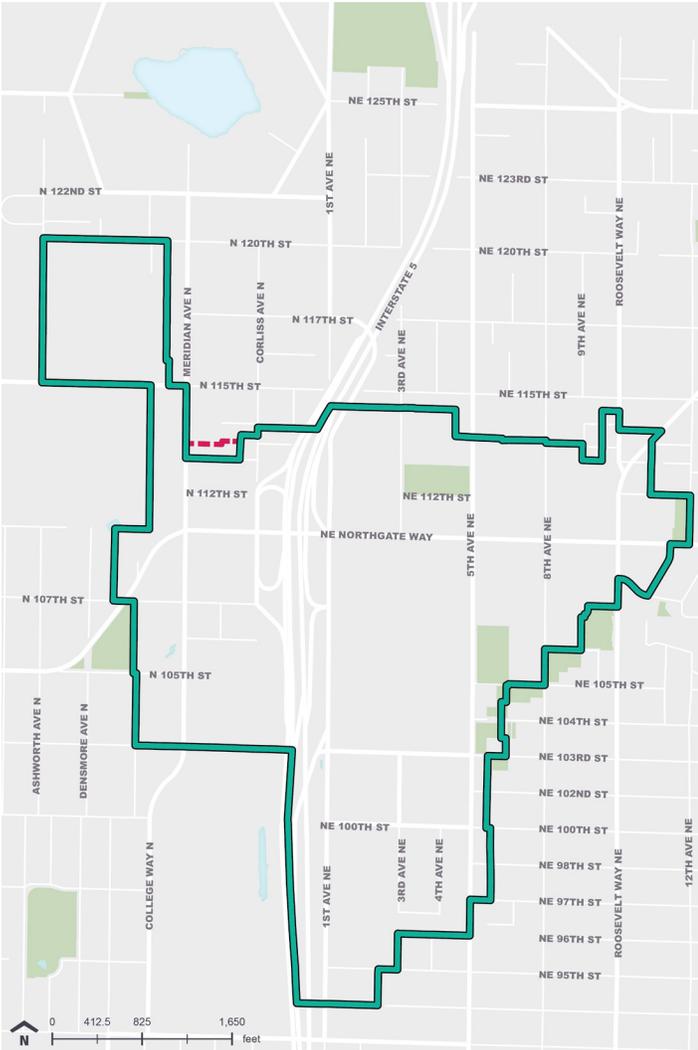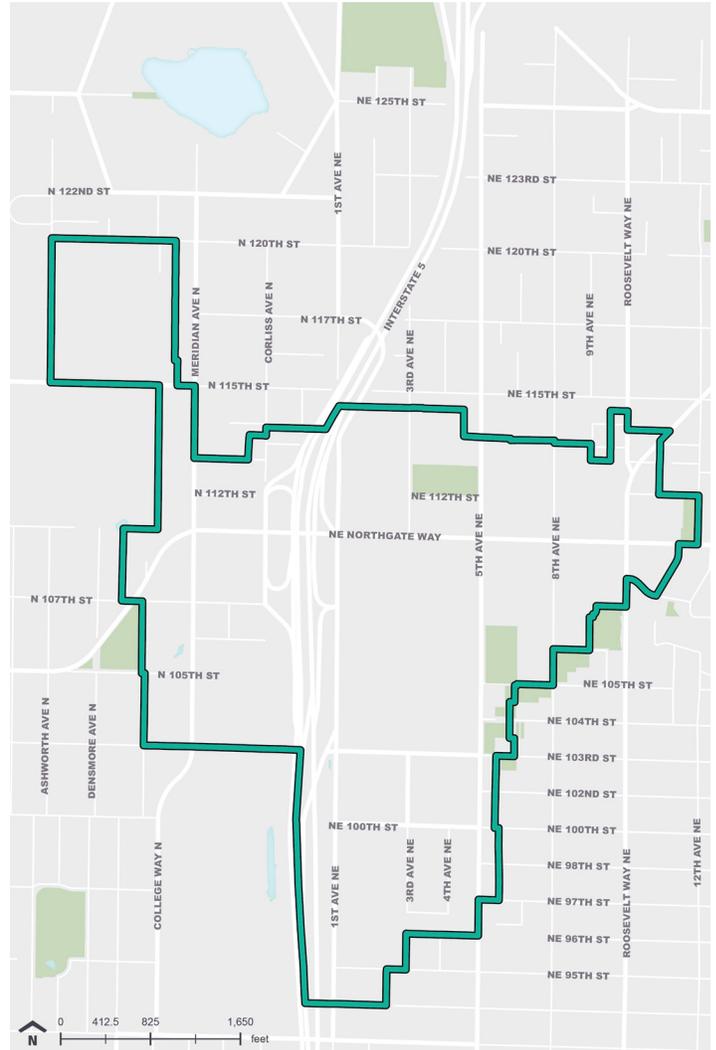
Alternative 2   Alternative 3

Exhibit 2–23
Proposed Urban Village Boundary Expansions Action Alternatives: Northgate
(High Displacement Risk and High Access to Opportunity)

The Northgate Urban Center boundary would expand by three acres in Alternative 2 and zero acres in Alternative 3. The expansion area was not studied in the Seattle 2035 plan, but is studied in this EIS. It is near the existing high-frequency bus transit service and the light rail station under construction near the existing Northgate Transit Center. The proposed expansion considers adding a small area of existing Lowrise multifamily zoned land and an adjacent parcel in existing commercial use to the urban center.

Source: City of Seattle, 2017.
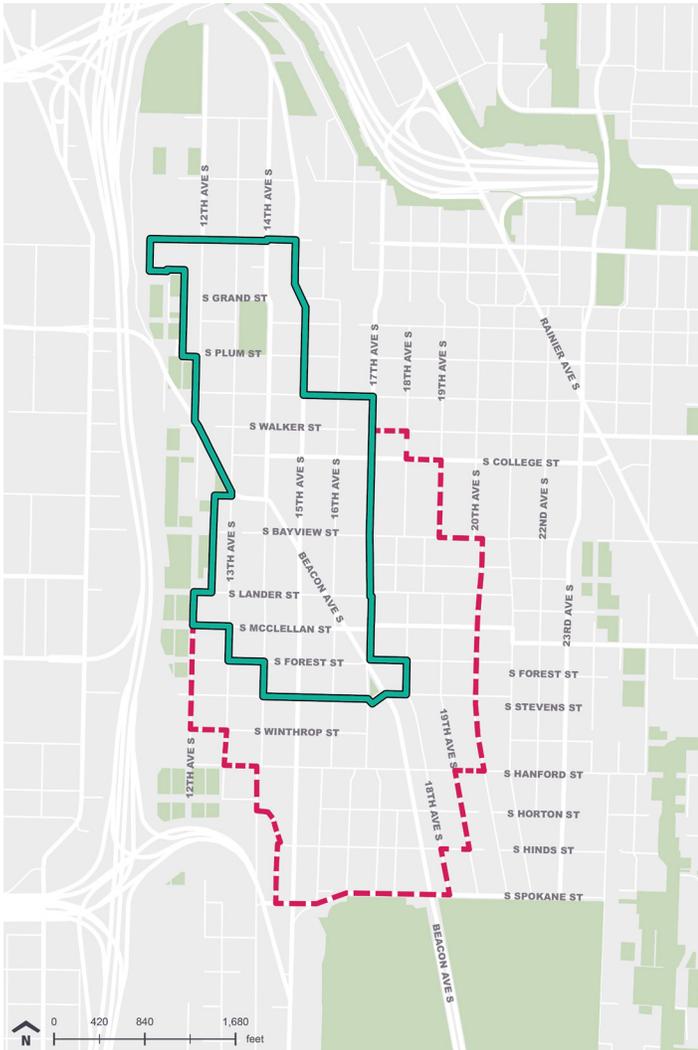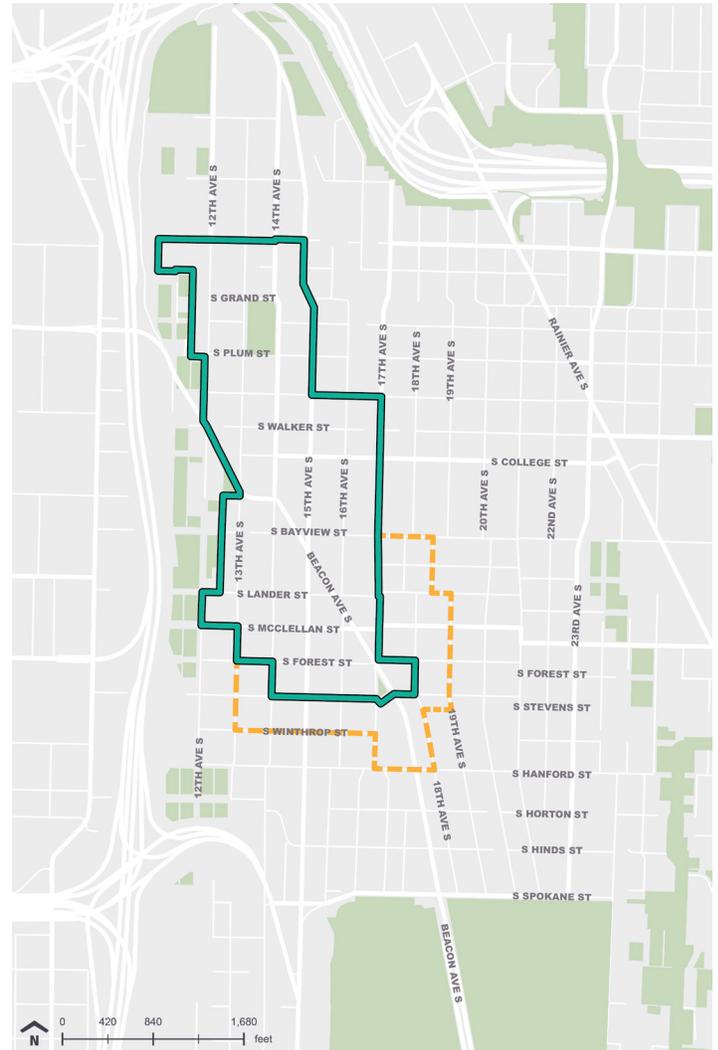
Alternative 2

Alternative 3

Exhibit 2–24
Proposed Urban Village Boundary Expansions Action Alternatives: North Beacon Hill
(High Displacement Risk and High Access to Opportunity)

The North Beacon Hill Urban Village boundary would expand by 83 acres in Alternative 2 and 22 acres in Alternative 3. The expansion area is near the light rail station at S Lander St. In Alternative 2 the expansion approximates a 10-minute walkshed, and in Alternative 3 the expansion approximates a 5-minute walkshed.

Source: City of Seattle, 2017.
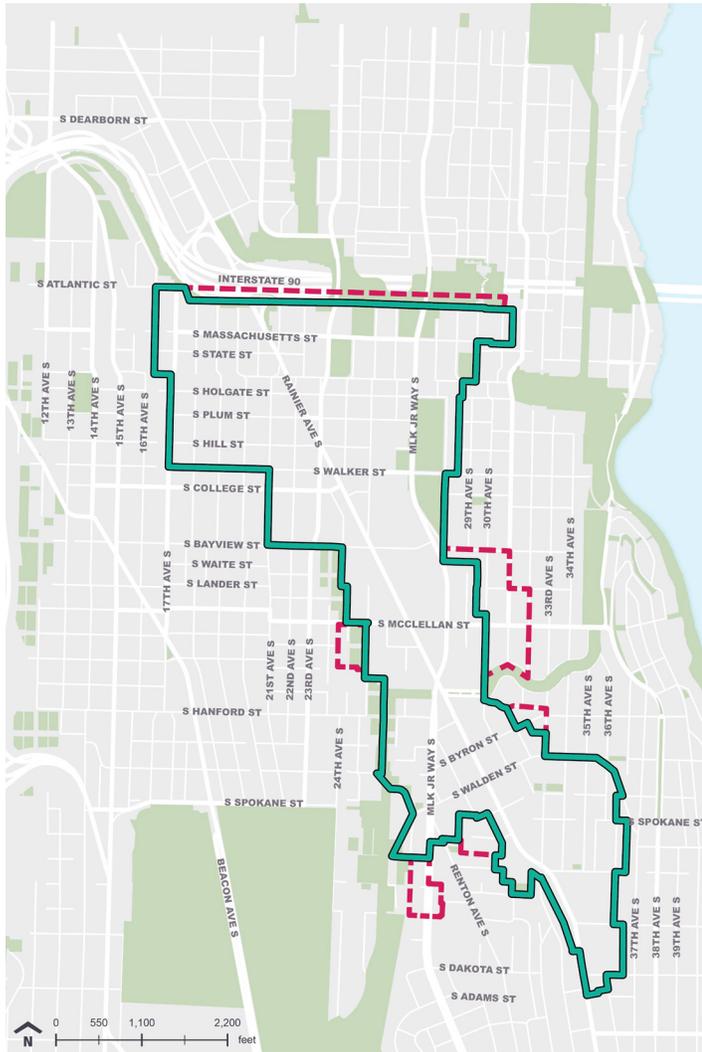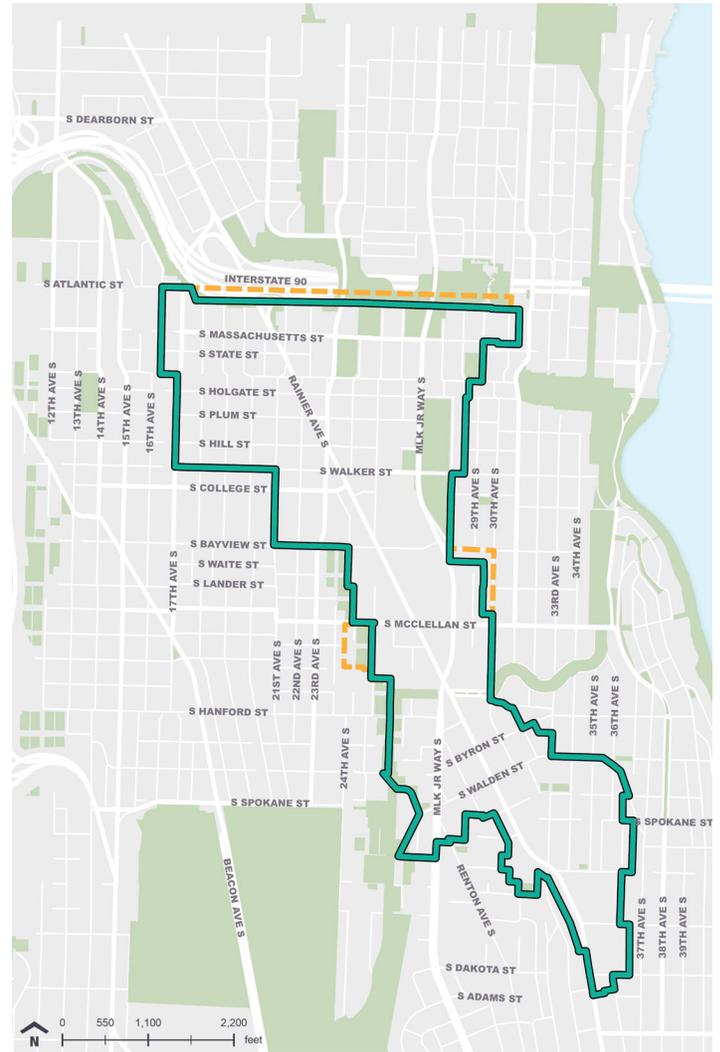
Alternative 2   Alternative 3

Exhibit 2–25
Proposed Urban Village Boundary Expansions Action Alternatives: North Rainier
(High Displacement Risk and High Access to Opportunity)

The North Beacon Hill Urban Village boundary would expand by 38 acres in Alternative 2 and 12 acres in Alternative 3. The expansion area is near the Mt Baker light rail station at S McLellan St and in the area adjacent to Interstate 90 where a future Judkins light rail station is under construction. In Alternative 2 the expansion approximates a 10-minute walkshed, and in Alternative 3 the expansion approximates a 5-minute walkshed.

Source: City of Seattle, 2017.
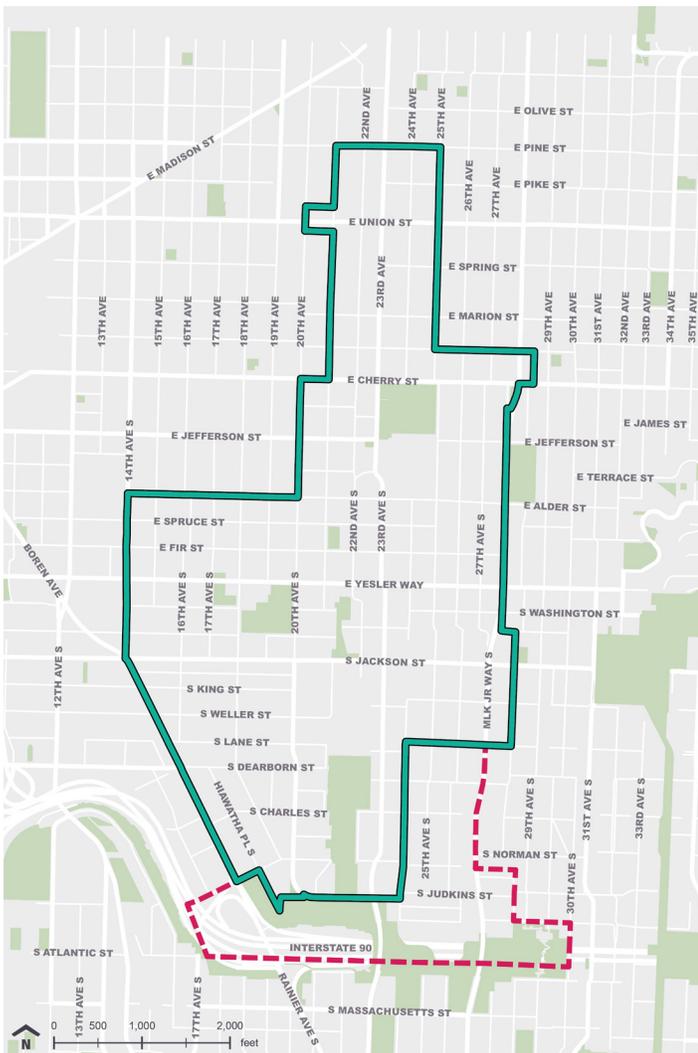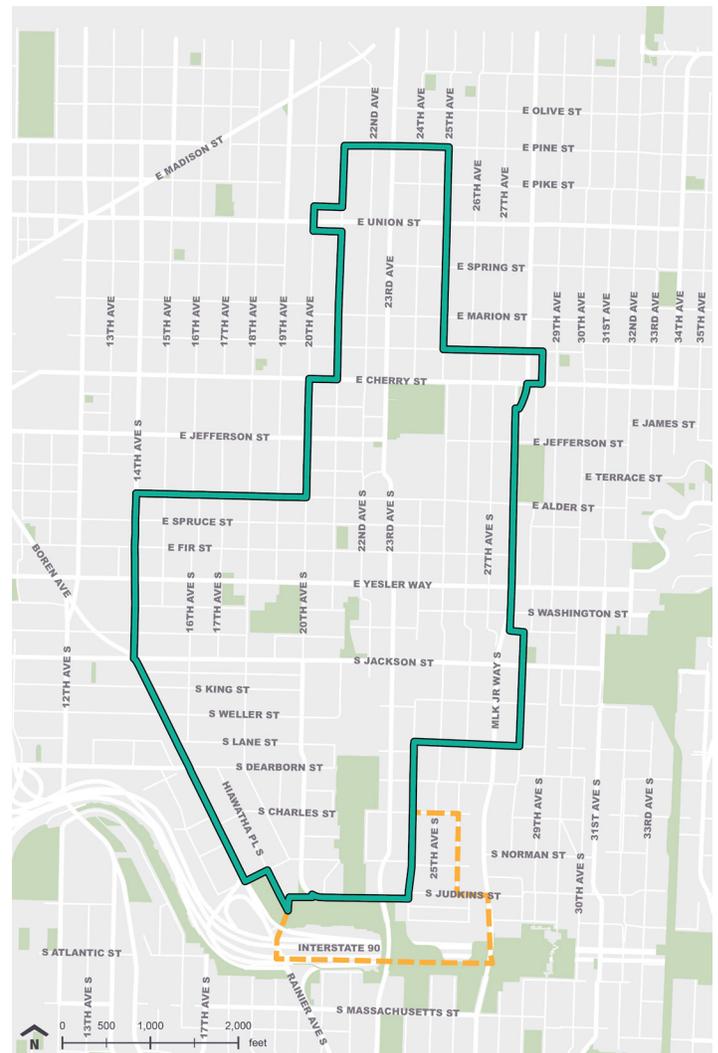
Alternative 2

Alternative 3

Exhibit 2–26
Proposed Urban Village Boundary Expansions Action Alternatives: 23rd & Union-Jackson
(High Displacement Risk and High Access to Opportunity)

The 23rd & Union–Jackson Urban Village boundary would expand by 40 acres in Alternative 2 and 18 acres in Alternative 3. The expansion area is adjacent to Interstate 90 where a future Judkins light rail station is under construction. In Alternative 2 the expansion approximates a 10-minute walkshed, and in Alternative 3 the expansion approximates a 5-minute walkshed.

Source: City of Seattle, 2017.

2.4   ALTERNATIVES CONSIDERED BUT NOT INCLUDED IN DETAILED ANALYSIS

This section identifies several additional alternatives that were considered for possible inclusion in the Draft EIS. Based on preliminary analysis, however, it was determined that they did not meet the project's objectives, were speculative, or would result in greater adverse impacts. Therefore, the EIS does not include them.

INCREASED MHA PERFORMANCE AND PAYMENT REQUIREMENTS

A version of MHA implementation with significantly increased MHA payment and performance requirements was considered. There was interest by some community members in the scoping phase, citing housing programs in peer cities such as New York and Boston, to review significantly higher MHA payment and performance requirements. The City reviewed the potential to evaluate an alternative with markedly higher MHA requirements, in the range of a 25 percent MHA performance requirement. Based on housing market analyses, we determined that, in the Seattle market, in some cases the currently proposed MHA amounts are at or very near the maximum supportable amount. Therefore, an alternative with markedly increased MHA amounts would be likely to negatively affect real estate markets and undermine economic feasibility for many projects, in turn depressing the housing market and limiting the affordable units generated. Based on these considerations, this alternative approach was excluded from further analysis in the EIS. The analysis used to reach this conclusion is summarized below

During formulation of the structure and payment and performance requirements for MHA, stakeholders—including experts from for-profit and non-profit development companies in the Seattle real estate market—reviewed general scenarios and models and engaged in extensive deliberation of MHA amounts. Their analysis determined that MHA performance requirements of five to seven percent were amounts that could be supported without negatively impacting development feasibility. Since that time, new variants of the MHA structure were added to create tiers that includes higher requirements, up to 11 percent for some capacity increases, and beyond amounts stakeholder experts viewed as supportable.

In 2016, an independent economic analysis conducted by Community Attributes Incorporated (CAI) a third-party consultant with expertise in development economics, evaluated the proposed development capacity increases and MHA requirements and released a technical memorandum in November 2016. The analysis calculated residual land values for 23 development prototypes in a variety of zones and market areas with the MHA rates for the (M) tier, and provided information about what prices land is currently traded at in those same general areas. Based on a comparison of theoretical land values to current land values, it determined that 19 of prototypes in strong market areas and 15 in medium market areas yielded positive feasibility results with baseline construction costs. Using the proformas developed by CAI, increased MHA requirements of 25 percent performance were tested. In this test, the number of feasible prototypes dropped to nine of 23 in strong market areas and six of 22 in medium market areas. It's important to note that development conditions vary widely from site to site, and the analysis is a general guide and not a definitive measure of feasible. However, the finding that a 25 percent requirement would render most development prototypes in strong and moderately strong markets infeasible given prevailing land prices suggests that an alternative with this approach would not plausibly achieve the proposed objectives.

VARYING GEOGRAPHIC DISTRIBUTION OF MHA AFFORDABLE HOUSING PAYMENT UNITS

Alternatives 2 and 3 distribute affordable housing units generated by in lieu MHA payments, and which will be developed by or for the City's Office of Housing (OH), in locations proportionate to the area's share of anticipated citywide residential growth. An alternative was considered that would concentrate greater or lesser numbers of the MHA units generated from payment according to some other combination of variables, which could include land costs, risk of displacement or other financial and policy factors.

OH makes its locational decisions guided by a set of criteria in its Council adopted Housing Funding Policies, which consider Comprehensive Plan policies as well as factors established in MHA framework legislation. OH must compete with the private market to acquire sites for development in Seattle's real estate market. Project locations are opportunistic, because they are dependent on lands that become available for sale. These factors make the specific pattern for distribution of housing units generate by MHA payments unpredictable. It was concluded, therefore, that an alternative that hypothesized concentrations of units generated

by MHA payments in any specific urban village or geographic location for the purposes of analysis would be extremely speculative.

Any project proposed by the OH, including projects constructed with payments generated by MHA, would be subject to project-level SEPA review. This review would consider how a project's location relates to the OH's own site investment criteria and to Comprehensive Plan policies.

INCENTIVE ZONING FOR AFFORDABLE HOUSING

As noted, the City has an existing voluntary incentive zoning for affordable housing that is in place in certain areas including portions of the study area and codified in SMC Chapter 23.58.A. If enacted, MHA would replace existing incentive zoning for affordable housing. Incentive zoning is not anticipated to produce a quantity of rent and income restricted units that would meet the objective of the proposed action. However, if MHA were not enacted, the City could pursue an incentive zoning approach. The Land Use Code and zoning changes evaluated in this EIS could be applied with incentive zoning.

MORE GENERAL ANALYSIS

Implementing MHA is a non-project action that would require certain future development to include or contribute to affordable housing, and make other land use regulatory changes described in this chapter. Due to the large study area, range of conditions, and time horizon it is difficult to anticipate precise specific patterns of household and job growth that could occur. More generalized alternatives for analysis were considered, which would have estimated growth without detailed GIS and development capacity modelling, and would not have included parcel-specific zoning maps contained in Appendix H. A more general analysis would have assumed no difference between the no action and action alternatives in the minimum 20-year growth estimation of the *Seattle 2035* plan. Or, a more general analysis would have made hypothetical assumptions about growth in urban villages. Due to scoping comments requesting detailed local analysis, and to provide more exacting estimations of potential growth, such generalized methods of analysis for the alternatives were discarded.

3

AFFECTED ENVIRONMENT, SIGNIFICANT IMPACTS, AND MITIGATION MEASURES.

This chapter describes the affected environment, potential impacts, and mitigation measures for the following topics:

- Section 3.1 Housing and Socioeconomics
- Section 3.2 Land Use
- Section 3.3 Aesthetics
- Section 3.4 Transportation
- Section 3.5 Historic Resources
- Section 3.6 Biological Resources
- Section 3.7 Open Space and Recreation
- Section 3.8 Public Services and Utilities
- Section 3.9 Air Quality and Greenhouse Gas Emissions

Following a description of current conditions (affected environment) the analysis compares and contrasts the alternatives programmatically and provides mitigation measures for identified impacts. It also summarizes whether there are significant unavoidable adverse impacts.

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3.1

HOUSING AND SOCIOECONOMICS.

3.1.1 AFFECTED ENVIRONMENT

This section addresses population and housing, both citywide and by neighborhood, including socioeconomic characteristics of households and housing affordability trends. It also examines historical evidence of physical and economic displacement, wherein households are compelled to move from their homes involuntarily due to the termination of their lease or rising housing costs. Finally, this section evaluates whether there have been any historical relationships between displacement and new residential development. This review of the affected environment serves as a baseline for analyzing and comparing the impacts of the three alternatives in 3.1.2 Impacts.

POPULATION AND HOUSEHOLD CHARACTERISTICS

Residents

The Washington State Office of Financial Management (OFM) estimates that Seattle has about 686,800 residents and 325,000 households as of April 2016. Since 2010, the population of Seattle is estimated to have grown by more than 78,000, an increase of nearly 13 percent over six years (OFM 2016). During the same period, the remainder of King County grew by only seven percent.

Job Growth and In-Migration

Much of the recent population growth in Seattle can be attributed to rapid in-migration. This is consistent with the city's role as a regional employment and growth center. The American Community Survey (ACS) estimates that more than 55,500 residents moved to Seattle from outside King County during the previous

year.[1] Among these in-migrants, 31,600 moved to Seattle from another state and 9,000 from abroad. Much of this in-migration is fueled by Seattle's rapid job growth in recent years, particularly in the technology sector. The City estimates that 87,600 jobs were added citywide between 2010 and 2015 (City of Seattle 2016).

Race and Ethnicity

As the city has grown, its racial and ethnic make-up has changed. While the share of people who identify as White has remained steady at around 70 percent since the year 2000, the share of Asian persons increased from 13 percent to 14 percent of the population between 2000 and the latest ACS estimates.[2] During the same period, the share of Black or African American persons decreased from about eight percent to seven percent. Persons who identified as two or more races grew slightly from five to six percent of the population during this period. Persons in other race categories—such as American Indian, Alaska Native, Pacific Islander, and other—held about the same share or declined slightly in their share of population during this period.[3] The share of population who identified as Hispanic or Latino grew from about five percent in 2000 to 6.5 percent in the latest ACS. Seattle has also become a more international city, as about 18 percent of Seattle's population in the latest ACS was foreign born, an increase from 17 percent in 2000. Overall, people of color living in Seattle increased from 32 percent of the population in 2000 to 34 percent in the latest ACS estimates but in the remainder of King County grew even faster.[4] This was true particularly for people under age 18. The number of children of color increased only two percent in Seattle, compared with 64 percent in the balance of King County (City of Seattle 2016, 159).

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1   This finding is based on survey data collected between 2011 and 2015. Thus, the estimate reflects the average number of people who moved to Seattle from a location outside of King County per year during this period. These figures represent in-migration only. During the same period, residents also moved out of Seattle. For King County as a whole, the estimated yearly net migration (in-migration minus out-migration) for this period was nearly 14,901 (OFM 2016). However, the number has been increasing over time. Estimated net migration from 2015–2016 was 39,168. Estimates for residential net migration for Seattle only are not available.

2   The 2011–2015 American Community Survey five-year estimates are used for the latest demographic analysis unless otherwise noted.

3   Given differences in how the U.S. Census asked about these questions in 1990 versus later censuses, observation about relative shares of population, trends, and Hispanic/Latino ethnicities must be made carefully.

4   The Census collects information on Hispanic/Latino ethnicity in a separate question from race. "People of color" encompasses Hispanics and Latinos of any race as well as people who are any race other than white alone.

An analysis of demographic change from 1990 to 2010 at the neighborhood level (City of Seattle 2017b) revealed the following findings:

- Loss of Black population in and around the Central District and in much of Southeast Seattle

- Increasing diversity where people of color have historically been a small share of population

- Increasing Black population shares in and around north Seattle neighborhoods and in parts of West Seattle

- Widespread increase in Hispanic/Latino population, with increasing concentrations in South Park and nearby southwest Seattle neighborhoods.

- Widespread, but not universal, increase in the share of neighborhood populations who are Asian or Pacific Islander

Exhibit 3.1–1 shows the population in census tracts by the percentage of people of color. The share of the population who are people of color varies significantly by geographic area, with percentages of 50 percent and greater in census tracts near the Central Area, southeast Seattle, South Park, and Westwood–Highland Park.

Exhibit 3.1–2 shows changes in shares of the population by race from 1990 to 2010, as analyzed in the City's Assessment of Fair Housing (AFH) submission to HUD in 2017. The percentage share of the population who are Black declined notably in the Central Area and nearby reporting areas. Almost all reporting areas in Seattle saw increases in the percentage of the population who are Hispanic or Latino, with the most notable increase in South Park and nearby areas of southwest Seattle. Most reporting areas saw increases in the share of populations who are Asian or Pacific Islander. All reporting areas north of the Ship Canal and in West Seattle saw reductions in the percentage share of the population by persons who are White.[5]

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5 *Exhibit 3.1–2 uses decennial Census estimates from the Brown University Longitudinal Tract Database, a database that adjusts for the change after 1990 in the way that the Census asks about race. The Seattle 2035 Growth and Equity Analysis further explores the historical change in the pattern of Seattle's racial composition (Appendix A) using unadjusted decennial census estimates.*

HⁱLA

City of Seattle

Percentage of the Population Who Are

Persons of Color
by Census Tract

Percentage of Population

- 0.0%–0.9%
- 1.0%–2.4%
- 2.5%–4.9%
- 5.0%–7.4%
- 7.5%–9.9%
- 10.0%–24.9%
- 25.0%–49.9%
- 50.0%–74.9%
- 75.0% and Higher
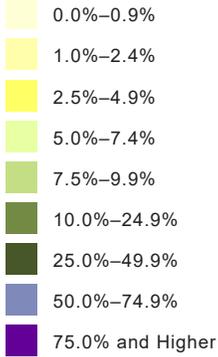
Source: City of Seattle, 2012; U.S. Census Bureau, 2010 Census.

In Seattle as a whole: **33.7%**
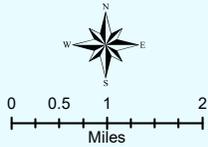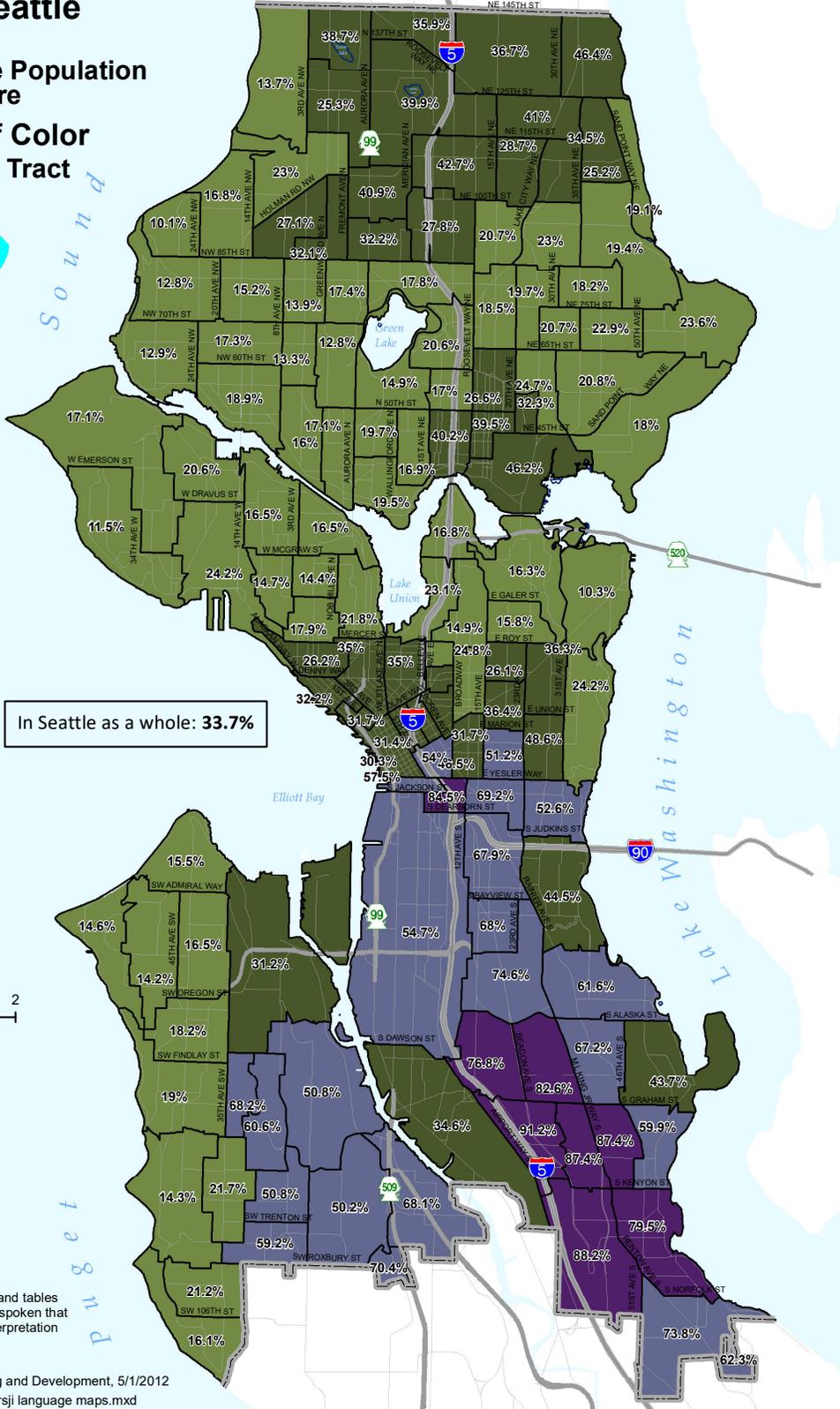
Source: U.S. Census Bureau, 2010 Census

This map is part of a series of maps and tables about race, ethnicity, and languages spoken that support outreach, translation and interpretation planning.

Prepared by: Department of Planning and Development, 5/1/2012
Path: o:\cgis1\CENSUS\projects\rsji\rsji language maps.mxd

Exhibit 3.1–1   Percentage of Population Who Are Persons of Color, 2010

What this map shows:
Bar charts show the percentage point change between 1990 and 2010 in the share of the population within each of Seattle's Community Reporting Area (CRA) who are of the races/ethnicities shown.

Examples:

Broadview/Bitterlake: The white share of this CRA's population declined by 16 percentage points while the Black share increased by 6 percentage points. (Whites were 88% of the population in 1990; 72% of the population in 2010; Blacks were 2% of the population in 1990; 8 percent of the population in 2010.)

Central Area/Squire Park: The White share of this CRA's population rose by 26 percentage points while the Black share fell by 34 percentage points. (Whites were 32% of the population in 1990; 58 percent in 2010; Blacks were 58% of the population in 1990; 24% of the population in 2010.)

Source: Decennial Census Data as adjusted in Brown University Longitudinal Tract Data Base: 1990 and 2010.

For more information see: https://s4.ad.brown.edu/projects/diversity/Researcher/Bridging.htm

1990–2010
- White
- Black
- Native American
- Asian and Pacific Islander
- Hispanic or Latino

Source: City of Seattle, 2017; U.S. Census Bureau, Decennial Census Data 1as adjusted in Brown University Longitudinal Tract Data Base: 1990 and 2010.

Exhibit 3.1–2   Change in Shares of Population by Race, 1990–2010

Age Profile

Exhibit 3.1–3 shows the population distribution by age and sex for all Seattle residents, Seattle residents residing in urban centers, and King County residents. Compared to the age distribution countywide, Seattle has a greater share of young adults in their 20s and 30s. In urban centers, young adults are even more prevalent. As of the 2010 Census, nearly one-half of Seattle's population was aged 18 to 44.

Seattle (Citywide)   **Urban Centers**   **King County**
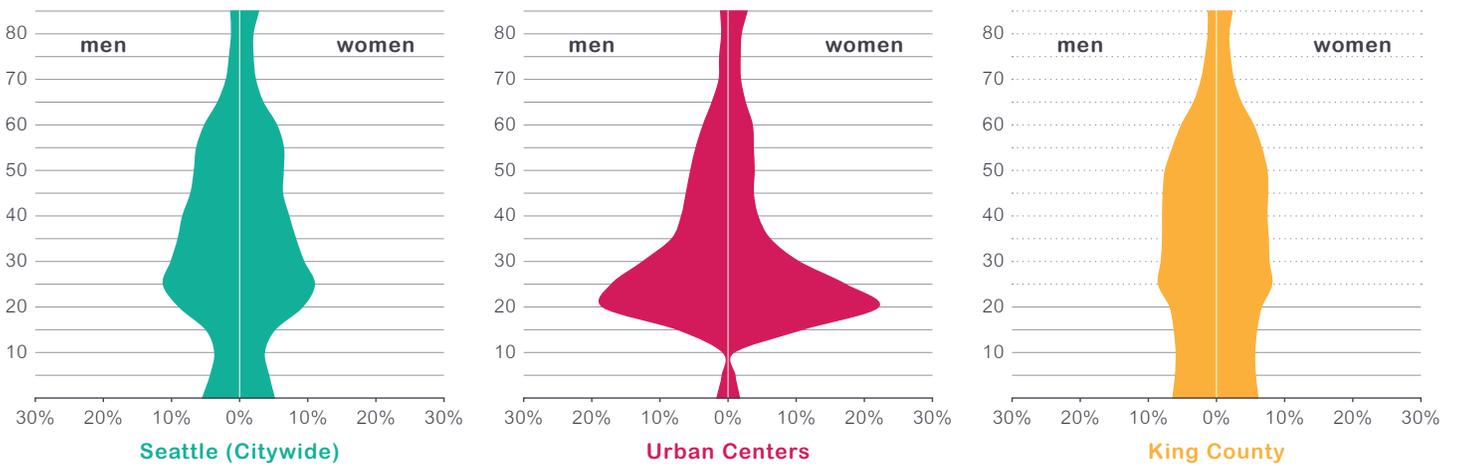
Exhibit 3.1–3   2010 Percentages of Population by Age and Sex

Source: U.S. Census 2010 Summary File 1; City of Seattle, 2016.

Household Size and Tenure

According to OFM, Seattle had about 325,000 households in 2016. Between 2010 and 2016, the city gained about 41,500 households, an nearly 15 percent increase. The average household in Seattle has 2.12 persons. This is a slight increase after a period of slow decline in household size, from 2.09 in 1990 to 2.06 in 2010. Household size varies by tenure: 2.39 for owner-occupied households and 1.89 for renter-occupied households.

Exhibit 3.1–4 shows the breakdown of all Seattle households by household size. Forty percent of all households are composed of a person living alone. Thirty-four percent of households include two people. Only a quarter of all households in Seattle have three or more people.

Between the years 2000 and 2010, the share of households citywide that are renter-occupied remained steady at around 52 percent. In the latest ACS estimates, 54 percent of households in Seattle are renter occupied. This recent trend is likely related to the rapid growth in multi-family housing during recent years, which is discussed in more detail below.
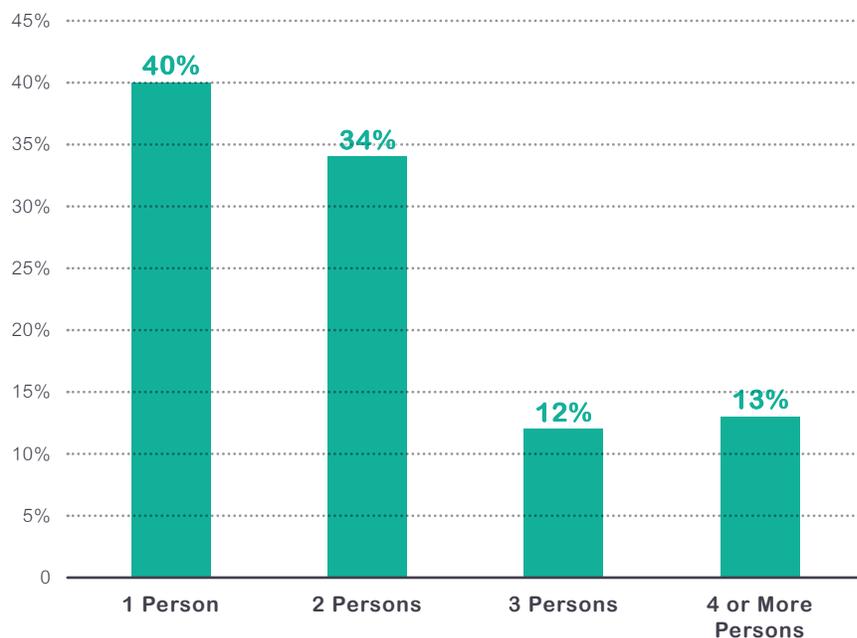
Exhibit 3.1–4   Seattle Households by Household Size

Source:U.S. Census American Community Survey 5-Year Estimates, 2011–2015; BERK, 2017.

Income

The latest ACS estimates the median household income in Seattle to be $70,600. This is roughly equal to the median household income of the Seattle-Tacoma-Bellevue metropolitan area: $70,500. However, per capita income in Seattle was $45,700, compared to $36,900 for the region. This is due to the higher number of single-person households in Seattle compared to the region. In Seattle, family households tend to have higher incomes than non-family households: $102,800 compared to $50,200. This can be explained in part by the large number of non-family households that have only one member. A similar difference can be seen when comparing owner- and renter-occupied households: $107,000 compared to $48,000. The median owner-occupied household income was more than double that of the median renter household in Seattle.

HUD calculates area median income (AMI) based on the median family income in the metropolitan region, sets that to a four-person family, and then makes certain adjustments to calculate a set of income limits for different household sizes in each area. For the year 2016, the Seattle-Bellevue metropolitan area's AMI is $90,300. Exhibit 3.1–5 shows income limits by household size relative to AMI.

Exhibit 3.1–5   HUD FY2016 Income Limits by Household Size in the Seattle–Bellevue, WA HUD Metro FMR Area

	PERCENT OF AREA MEDIAN INCOME (AMI)					
Household Size	**30%**	**40%**	**50%**	**60%**	**70%**	**80%***
1 Person	$19,000	$25,320	$31,650	$37,980	$41,145	$48,550
2 Persons	$21,700	$28,920	$36,150	$43,380	$46,995	$55,450
3 Persons	$24,400	$32,520	$40,650	$48,780	$52,845	$62,400
4 Persons	$27,100	$36,120	$45,150	$54,180	$58,695	$69,300
5 Persons	$29,300	$39,040	$48,800	$58,560	$63,440	$74,850
6 Persons	$31,450	$41,920	$52,400	$62,880	$68,120	$80,400
7 Persons	$33,650	$44,800	$56,000	$67,200	$72,800	$85,950
8 Persons	$35,800	$47,680	$59,600	$71,520	$77,480	$91,500

* HUD 80% of AMI income limit capped by U.S. median family income level.
Source: HUD, 2016.

HUD obtains and publishes special tabulations from the Census Bureau to assist local communities assess housing needs. These tabulations, known as Consolidated Housing Affordability Strategy (CHAS) data, include estimates on the distribution of households by AMI-based income categories. The most recent data available that estimated the numbers of
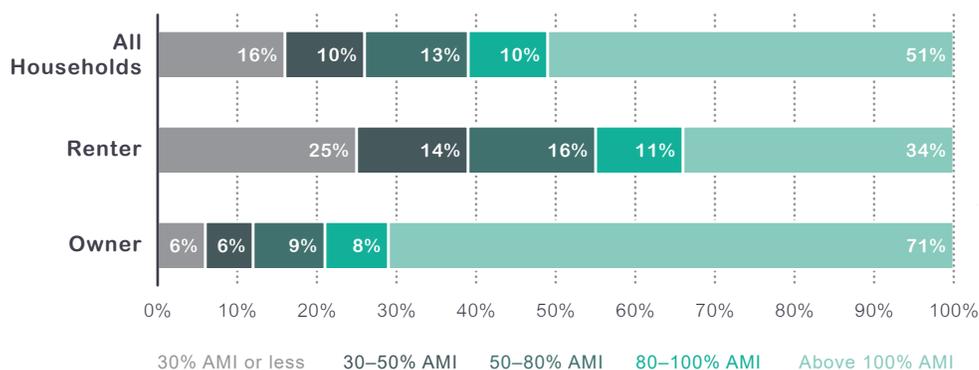
Exhibit 3.1–6
Household Income Breakdown by Housing Tenure, 2009–2013 ACS

Source: U.S. Department of Housing and Urban Development (HUD), Consolidated Housing Affordability Strategy (CHAS) based on ACS Five-Year Estimates; BERK, 2017.

households by income level reflects data collected between 2009 and 2013. Exhibit 3.1–6 shows the distribution of households in Seattle by income level. A quarter of all renter households had incomes at or below 30 percent of AMI. Fourteen percent of renter households had incomes between 30 and 60 percent of AMI during this period. Owner-occupied households were much more likely to have incomes above 100 percent of AMI.

Household incomes have been changing over time. Exhibit 3.1–7 breaks down Seattle households by income level in 2000 and 2009-2013.[6] During the 2009–2013 period there were considerably more higher-income households than in 2000, while the percentage of households in the moderate- and lower-middle-income categories (i.e., 30–80 percent of AMI) decreased.

Exhibit 3.1–7 Share of Total Households by Household Income Level, 2000 and 2009–2013
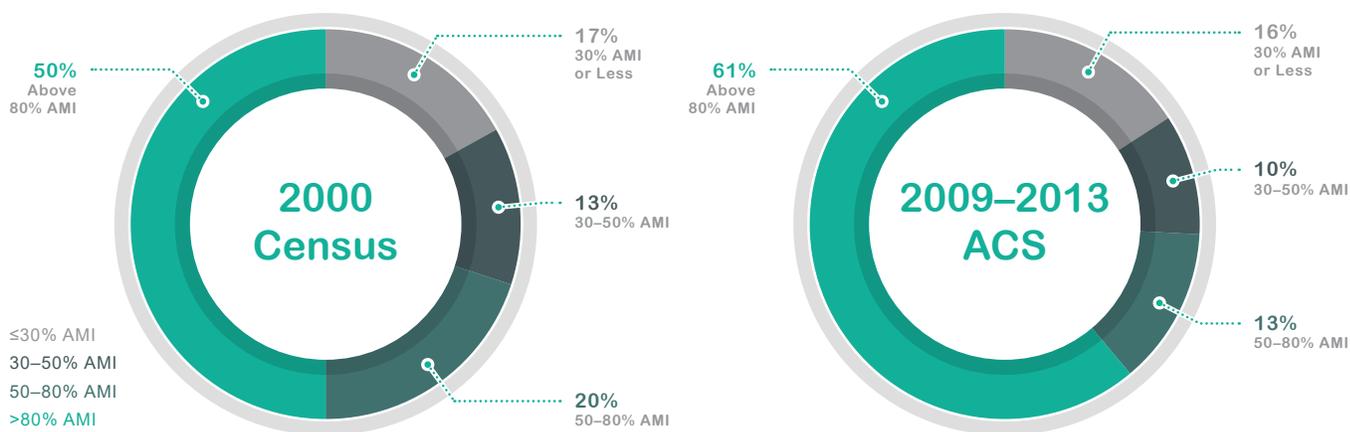
Source: HUD CHAS (based on U.S. Census 2000 and ACS Five-Year Estimates, 2009–2013); BERK, 2017.

6 *The U.S. Census provides guidance on comparing 2013 ACS data to the 2000 decennial census (U.S. Census Bureau 2016). Data for both periods is associated with a margin of error due to reliance on survey data. The scale of change found in this analysis exceeds that which could be explained by margin of error alone.*

HᴀLA

Exhibit 3.1–8
Percentage of Households
with Income at or Below 60%
of AMI, 2009–2013 ACS

Urban Centers/Villages

⬚ In MHA Study Area

☐ Outside MHA Study Area

**Percent of Households with
Income Below 60% AMI**

0% – 15%
16% – 30%
31% – 45%
46% – 60%
61% – 75%
> 76%

*Source: HUD CHAS (based on ACS
Five-Year Estimates, 2009–2013, U.S.
Census Bureau); BERK, 2017.*
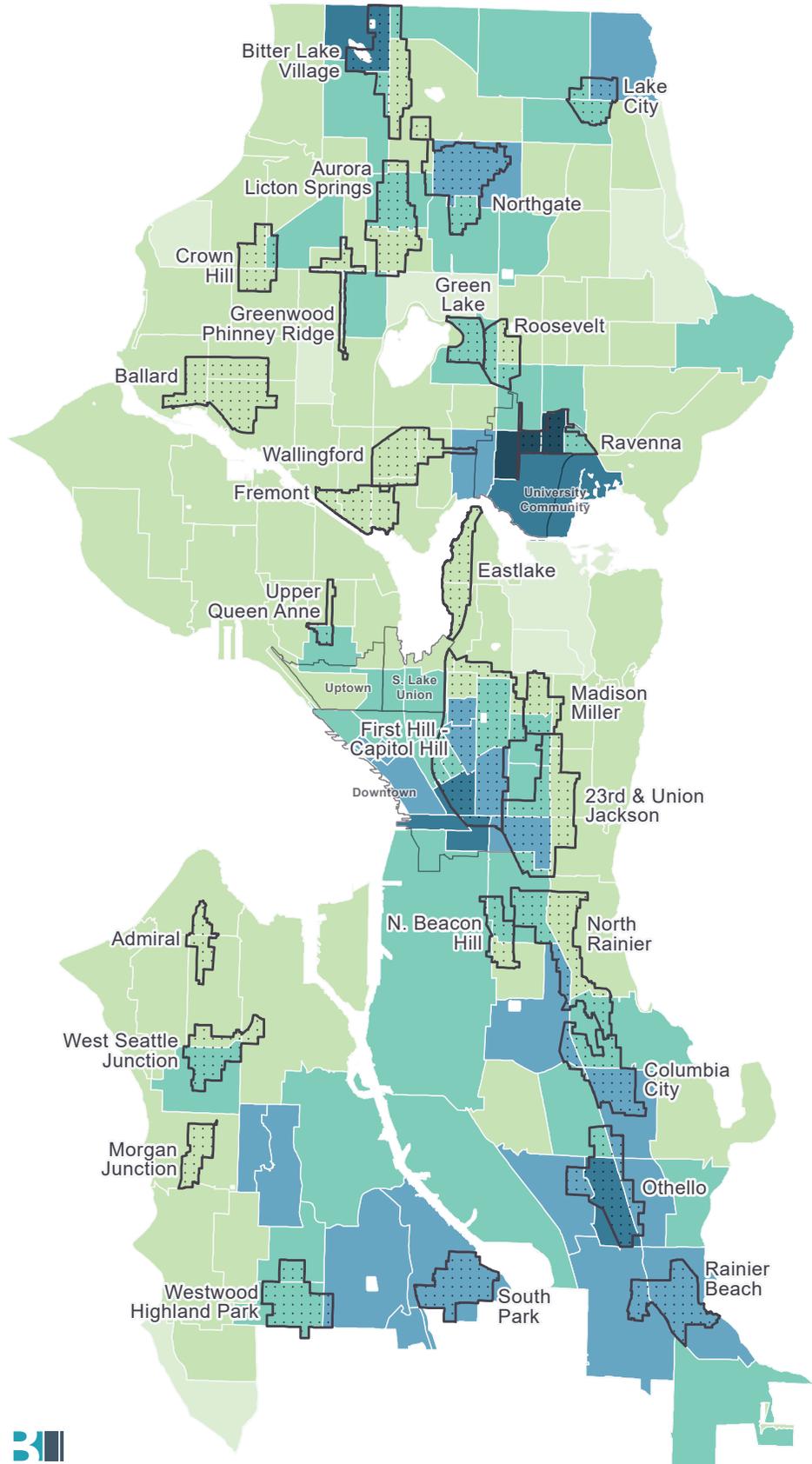
The distribution of households by income level varies considerably across the city. Exhibit 3.1–8 shows the percentage of households with incomes of 60 percent of AMI or below based on five-year estimates from the 2009–2013 ACS. This percentage is highest in the University District, parts of Downtown, and several neighborhoods in the southern and northern parts of the city.

Household incomes also vary by household race and ethnicity, as shown in Exhibit 3.1–9. More than 40 percent of households with a householder of color have incomes of 50 percent of AMI or less. This compares to only 21 percent of households with a White, non-Hispanic householder. Among only households with an African American householder, 54 percent have incomes of 50 percent of AMI or less. Only 36 percent of households with a householder of color have incomes above AMI, compared to 57 percent of households with a White, non-Hispanic householder. Only 24 percent of African American households have incomes above AMI.

0% AMI or less   30–50% AMI   50–80% AMI   80–100% AMI   Above 100% AMI
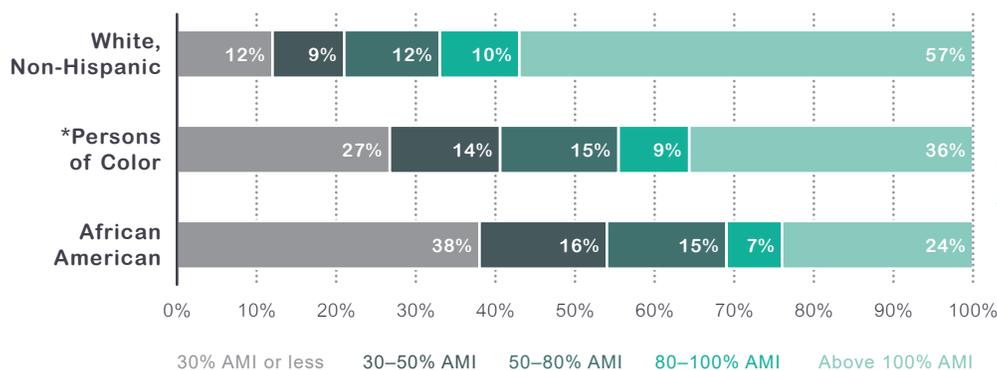
Exhibit 3.1–9
Household Income by Race/
Ethnicity of Householder,
2009–2013

*Persons of color includes households with
householder who is Hispanic or Latino of
any race and households with a householder
who is any race other than White alone.*

*Source: HUD CHAS (based on ACS Five-
Year Estimates, 2009–2013); BERK, 2017.*

Key Findings—Population and Household Characteristics

- Seattle is growing rapidly due primarily to strong job growth and in-migration.

- Seattle's demographic composition is changing. More people of color are moving to neighborhoods that were once predominantly White, while areas with historically the highest shares of non-whites are losing people of color.

- In Seattle, young adults in their 20s and 30s are a greater share of the population than this age group in the county as a whole. In Seattle's urban centers, young adults are even more prevalent than in the city as a whole.

- More than a quarter of all renter households have incomes of 30 percent of AMI or below.

- Compared to renters, owner-occupied households are much more likely to have high incomes.

- Since 2000, Seattle has lost low-income households earning between 30 and 80 percent of AMI as a share of total households citywide.

- Households with a householder of color, particularly one who is African American, are much more likely than other households to have low and very low incomes.

HOUSING INVENTORY

According to OFM, Seattle has about 338,000 housing units as of April 2016. Exhibit 3.1–10 shows the breakdown of these units by building type. About 43 percent of housing units in Seattle are single-family homes, and 48 percent are in larger apartment and condominium buildings with five or more units.

Exhibit 3.1–10   Housing Inventory by Building Type (Units in Structure), 2016

Building Type (Units in Structure)	Total Units	Percent of Total
1 (Single Family)	143,725	43%
2 (Duplex)	14,652	4%
3 or 4	16,367	5%
5 or more	163,272	48%
Mobile Homes	141	0%
Total Units	*338,157*	

Source: Washington State OFM Custom Data Extract, Sept. 16, 2016; BERK, 2017.

Between 2010 and 2016, the city gained nearly 30,000 net new units. About 90 percent of these net new units were in multifamily housing structures with five or more units, three percent were in duplexes, three percent were in buildings with three or four units, and four percent were single family homes (OFM 2016b). Exhibit 3.1–11 shows the distribution of housing growth through Seattle by urban village between 1995 and 2015. The great majority (77 percent) of new units occurred in urban centers and urban villages.

Exhibit 3.1–11   Housing Units in Seattle by Urban Center/Village, 1995–2015

	1995 Year-End Total Housing Units	1996–2015 Housing Units Built (Net)	% Change In Housing Units 1995–2015	2015 Year-End Total Housing Units*
Urban Centers	**47,040**	**33,167**	**71%**	**80,322**
Downtown	10,618	13,478	127%	24,347
First Hill–Capitol Hill	21,562	7,907	37%	29,619
Northgate	3,559	1,167	33%	4,535
South Lake Union	809	3,954	489%	4,536
University Community	6,583	3,168	48%	9,802
Uptown	3,909	3,493	89%	7,483
Hub Urban Villages	**14,253**	**10,654**	**75%**	**24,505**
Ballard	4,772	3,963	83%	9,168
Bitter Lake Village	2,364	1,380	58%	3,257
Fremont	2,194	1,111	51%	3,200
Lake City	1,391	1,138	82%	2,546
Mt. Baker (North Rainier)	1,568	875	56%	2,454
West Seattle Junction	1,964	2,187	111%	3,880
Residential Urban Villages	**29,348**	**12,731**	**43%**	**42,174**
23rd & Union–Jackson	3,342	1,979	59%	5,451
Admiral	847	311	37%	1,131
Aurora–Licton Springs	2,534	977	39%	3,454
Columbia City	1,794	1,367	76%	2,683
Crown Hill	1,125	174	15%	1,307
Eastlake	2,632	821	31%	3,829
Green Lake	1,512	860	57%	2,605
Greenwood–Phinney Ridge	1,244	595	48%	1,757
Madison–Miller	1,639	1,159	71%	2,781
Morgan Junction	1,196	220	18%	1,342
North Beacon Hill	1,171	215	18%	1,474
Othello	1,715	1,563	91%	2,836
Rainier Beach	1,280	113	9%	1,520
Roosevelt	1,031	573	56%	1,616
South Park	975	195	20%	1,292
Upper Queen Anne	1,363	377	28%	1,724
Wallingford	2,158	951	44%	3,222
Westwood–Highland Park	1,790	281	16%	2,150
Manufacturing/Industrial Centers	**1,298**	**(39)**	**-3%**	**1,065**
Ballard–Interbay–Northend	551	(15)	-3%	660
Greater Duwamish	747	(24)	-3%	405
Inside Centers/Villages	**90,641**	**56,552**	**62%**	**147,001**
Outside Urban Villages	**170,972**	**16,503**	**10%**	**189,187**
CITY TOTAL	**261,613**	**73,055**	**28%**	**336,188**

* To estimate the 2015 total number of housing units, City staff started with the most recent decennial Census (2010) housing unit count and added the net number new units built since that count was taken. (Net new units built is the number of newly built minus the number of units demolished, based on numbers in the SDCI permit system.) Adding the 1996–2015 permit data in the table to the 1995 total does not match the 2015 total, due to recalibrating the housing unit count from the 2010 decennial Census.

Source: City of Seattle 2016, 413.

Housing Affordability

Housing affordability is typically expressed as a measure of housing cost in relation to household income. The standard for housing affordability set by HUD is housing costs that amount to 30 percent or less of a household's gross income. Households paying more than 30 percent of their gross income for housing costs may have difficulty affording necessities such as food, clothing, transportation, and medical care and are considered to be "cost-burdened" with respect to housing. Households that pay more than 50 percent of their gross income for housing costs are considered "severely cost-burdened."

Exhibit 3.1–12 shows affordable rents for households in Seattle at different income levels. Rental housing costs include rent and basic utilities. For homeowners, costs include monthly principal, interest, taxes, and insurance; homeowner association dues; and other costs directly related to ownership of a unit.

Exhibit 3.1–12   Affordable Rents Including Utilities at 30 Percent of Household Income

| Unit Size | HOUSEHOLD INCOME (PERCENT OF AMI) | | | | | |
	30%	40%	50%	60%	65%	80%
0 Bedrooms	$475	$633	$791	$949	$1,028	$1,213
1 Bedroom	$508	$678	$847	$1,017	$1,101	$1,300
2 Bedrooms	$610	$813	$1,016	$1,219	$1,321	$1,560
3 Bedrooms	$705	$939	$1,174	$1,409	$1,526	$1,801
4 Bedrooms	$786	$1,048	$1,310	$1,572	$1,703	$2,010
5 Bedrooms	$868	$1,156	$1,445	$1,734	$1,878	$2,218

Source: HUD, 2016.

The most recent data about household cost burden is from the 2009–2013 ACS survey period. Exhibit 3.1–13 shows household cost burden by tenure. HUD estimates that 37 percent of all Seattle households are either cost burdened or severely cost burdened. Renter households are significantly more likely to experience cost burden than owner-occupied households. And they are nearly twice as likely to be severely cost-burdened: 20 percent of renter households are severely cost-burdened compared to 11 percent of owner households.

Exhibit 3.1–14 breaks down renter household cost burden by income category. Low- and very-low-income households are most likely to experience cost burden. 83 percent of low-income households spend
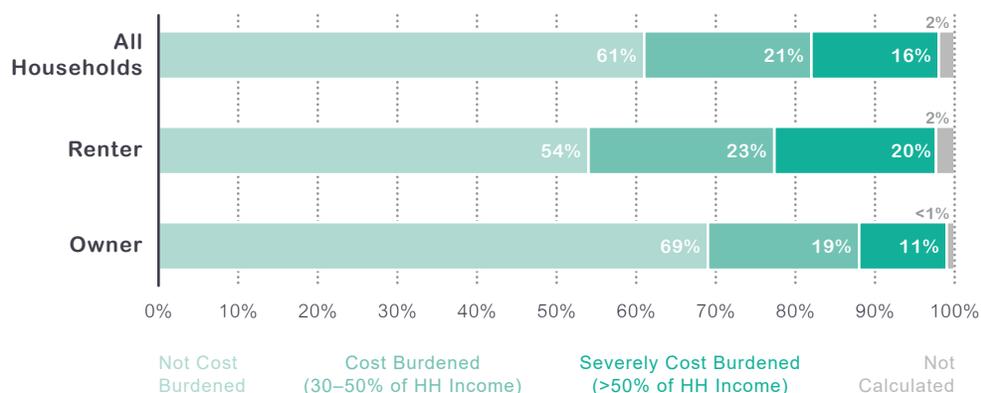
Exhibit 3.1–13
Household Cost Burden
by Tenure, 2009–2013

Note: "Not Calculated" refers to households with no or negative income.

Source: HUD CHAS (based on ACS Five-Year Estimates, 2009–2013); BERK, 2017.
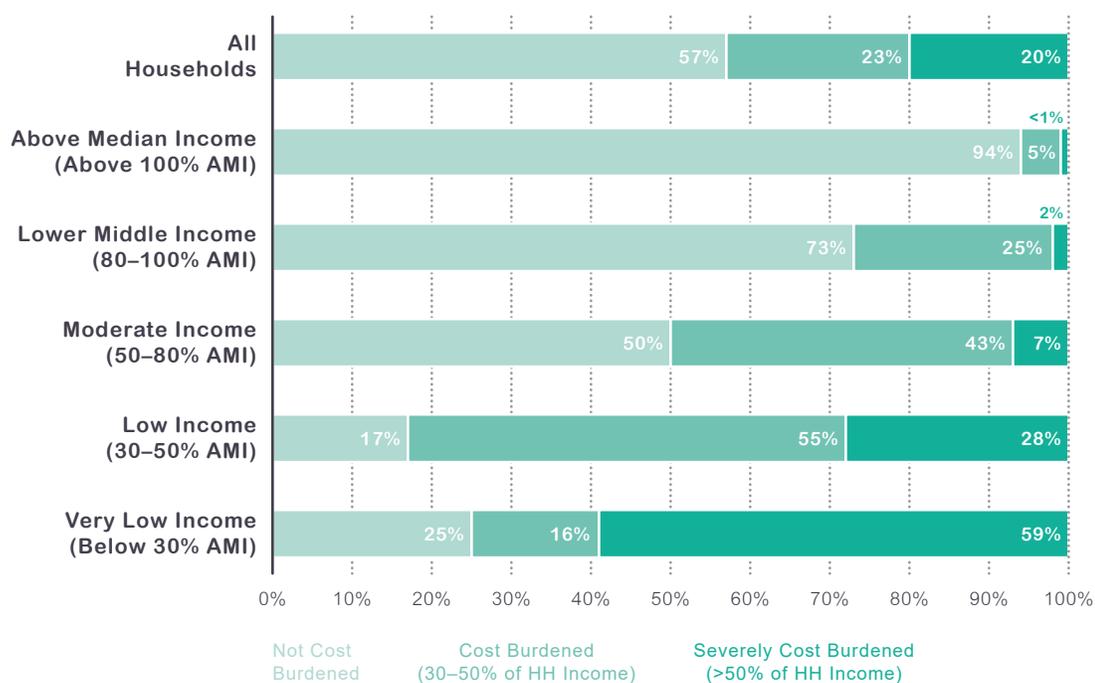
Exhibit 3.1–14
Share of Renter
Households with Cost
Burden by Income Category

Source: HUD CHAS (based on ACS Five-Year Estimates, 2009–2013); BERK, 2017.

more than 30 percent of their income on housing while 28 percent spend more than half their income on housing. Even among households with incomes between 50 and 80 percent of AMI, nearly half experience some kind of burden.

Exhibit 3.1–15 compares the share of renter households that experience housing cost burden by income level for the years 2000 and 2009–2013. The percentage of households with cost burden has risen since 2000 in all income categories. This rise in cost burden is most notable among renter households with incomes between 30 and 50 percent of AMI and between 50 and 80 percent of AMI.

Exhibit 3.1–15 Share of Total Renter Households with Housing Cost Burden, 2000, and 2009–2013

Income Category	2000	2009–2013
≤ 30% of Area Median Income	71%	75%
> 30% to ≤ 50% of Area Median Income	72%	83%
> 50% to ≤ 80% of Area Median Income	36%	50%
> 80% of Area Median Income	6%	11%

Source: HUD CHAS (based on ACS Five-Year Estimates, 2009–2013); BERK, 2017.

Exhibit 3.1–16 summarizes the shares of households in each income level defined by HUD as severely cost burdened, meaning they spend more than half their income on housing. Percentages have risen in all income categories at or below 80 percent of AMI since 2000.

Exhibit 3.1–16 Share of of Total Renter Households with Severe Housing Cost Burden, 1990, 2000, and 2009–2013

Income Category	1990	2000	2009–2013
≤ 30% of Area Median Income	55%	54 %	59%
> 30% to ≤ 50% of Area Median Income	21%	22%	29%
> 50% to ≤ 80% of Area Median Income	3%	4%	7%
> 80% of Area Median Income	N/A	1%	1%

Source: HUD CHAS (based on ACS Five-Year Estimates, 2009–2013); BERK, 2017.

Rapid increases in rents are one key reason for the rise in the share of renter households that are cost burdened. Between fall 2010 and fall 2016, average monthly rents rose by 55 percent after adjusting for inflation, from $1,104 to $1,715. Rents rise when housing supply is insufficient to meet high demand. In Seattle, high housing demand is being driven in large by rapid job growth in Seattle and increased household preferences for in-city living.

Exhibit 3.1–17 shows inflation-adjusted rents in 2016 dollars and the rate of apartment vacancy. The relationship between housing supply and housing demand is reflected in the fact that, whenever the vacancy rate rose above five percent, inflation-adjusted rents either stabilized or declined. When vacancy rates fell below five percent, rents increased. This

Average Monthly Rent (2016 Dollars)   **Market Vacancy**
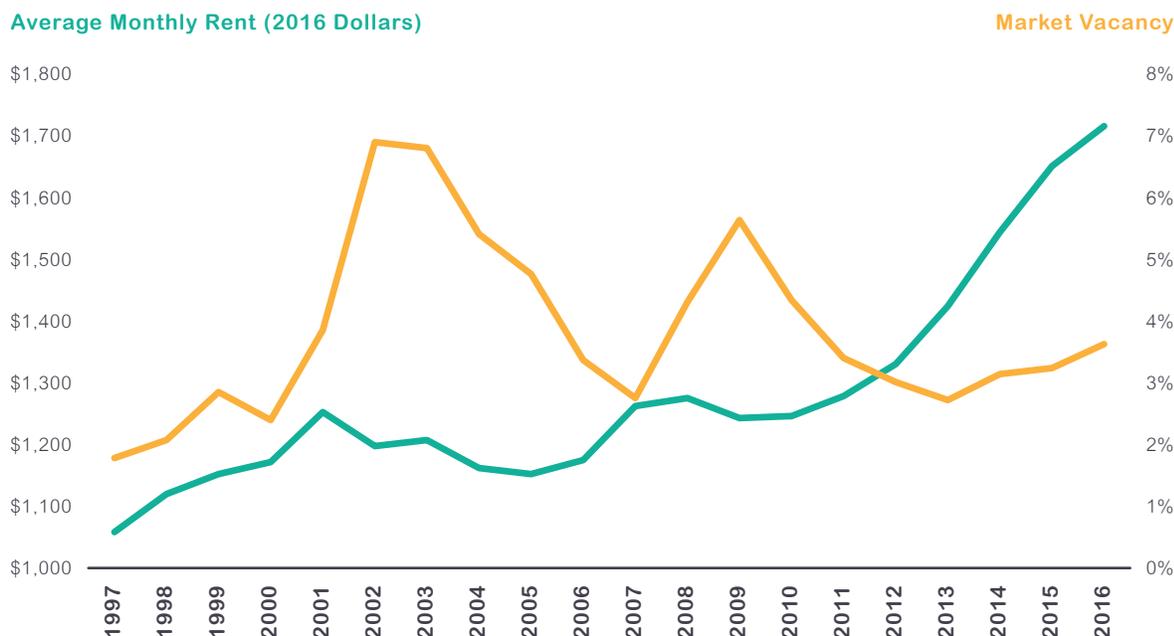
Exhibit 3.1–17   Average Monthly Rent in 2016 Dollars and Vacancy Rate in Apartment Complexes with 20+
Units, All Unit Types

Source: Dupre+Scott, 2017; BERK, 2017.

shows that maintaining stability in market-rate housing prices depends on
sufficient housing supply, even if it does not lead to reductions in prices at
the same scale of price increases that periods of housing shortage cause.

While the general relationship between vacancy rate and rents has
been consistent throughout the 1997 through 2016 period for which
data is available, it is also clear that the rate of increase in rents
accelerated significantly starting around 2011. One explanation for this
rapid increase in average rents is the prolonged period of low vacancy
staring around 2010, indicating that demand for housing has outpaced
housing construction over the past six years. However, despite demand
outpacing supply, this was also a period of rapid housing construction.
Rent for units in new apartment buildings tend to be higher than in older
buildings. Exhibit 3.1–18 shows the average gross rent for one-bedroom
apartments in medium to large apartment buildings in 2016. Units in
buildings built 2010 or later rent for $2,077 per month on average. This is
$490 more per month than buildings constructed in the 1980s and 1990s,
and $760 more than buildings constructed from 1965–1979. This rapid
influx of new buildings, in aggregate, can distort the apartment market by
pushing up the average of all apartment rents. At the same time, the new
supply reduces upward pressure on rents in the remaining housing stock.

Exhibit 3.1–18 One-Bedroom Gross Rents by Age Group Medium to Large
Apartment Complexes (20+ units), Fall 2016

Period In Which Building Was Constructed	Surveyed Properties	Surveyed Units	Average Gross Rent	% Difference From Average for All 1-Br Units
1900-44	199	3,398	$1,450	-17%
1945-64	129	3,869	$1,374	-22%
1965-79	111	3,224	$1,317	-25%
1980-99	177	5,826	$1,587	-9%
2000-09	102	4,649	$1,911	9%
2010+	165	12,659	$2,077	19%
Total	*883*	*33,625*	*$1,752*	*0%*

Source: Dupre+ Scott, 2017; City of Seattle, 2017; BERK, 2017.

While much of the newer rental housing in high-demand neighborhoods is currently affordable only to middle- and higher-income households, prior research indicates that new housing production can prevent or reduce negative impacts on housing affordability citywide in a general sense by reducing upward pressure on rents. Without newly constructed housing, more high-income households would compete with low- and moderate-income households for the remaining older housing stock in the market. This increased competition in turn increases upward pressure on all housing costs. Appendix I reviews prior research on the relationships between housing supply and housing costs. This review summarizes studies that quantify how constraints on housing production affect market-rate housing prices, as well as studies showing that increasing the quantity and diversity of housing stock in a high-demand housing market can reduce market-rate housing costs. These research findings suggest that housing costs in high-demand markets increase more rapidly when constraints slow the production of new housing supply.

When considering the impacts of new expensive housing on the housing market, it is also important to consider that this housing is not new forever. As shown in Exhibit 3.1–18, when housing stock ages, it gradually becomes more affordable relative to the remainder of the housing stock. Zuk and Chapple (2016) examined this process of filtering in the San Francisco Bay Area and found evidence that neighborhoods with more market-rate housing production in the 1990s had lower median rents in 2013. However, their review of previous research studies indicates that the rate of filtering is slow in a high-demand market like the Bay Area and therefore limited in its ability to provide affordable housing for low-income households. One plausible explanation for the slow rate

of filtering is the fact that housing production is not keeping pace with housing demand.

Notwithstanding the positive effect on housing costs of additional housing supply referenced above, data show that additional housing supply will not fully solve the fundamental problem of insufficient affordable housing to meet the need for such housing among low-income households. While the cost of market-rate rental housing varies by age of housing stock, currently very little market-rate rental housing, whether new or old, is affordable to low- or very-low-income households. The City recently analyzed the affordability of unsubsidized rental housing based on surveys conducted by Dupre+Scott Apartment Advisors. Rental costs examined in that analysis included monthly rents and an adjustment for the cost of tenant-paid utilities (City of Seattle 2017). Exhibit 3.1–19 categorizes the rental housing stock in apartment complexes with 20 or more units by level of affordability. This analysis finds that, citywide, only three percent of housing units in these market-rate rental buildings are affordable to households with incomes of 60 percent of AMI. Yet, nearly half of all renter households have incomes at or below 60 percent of AMI.

Affordability Levels
Based on 2016 HUD Area Median Income (AMI)

☐ >120% of AMI
☐ 80-120% of AMI
☐ 60-80% of AMI
■ 50-60% of AMI
■ 0-50% of AMI

>120% of AMI, 26.3%

80-120% of AMI, 50.6%

60-80% of AMI, 20.6%

50-60% of AMI, 2.2%
0-50% of AMI, 0.3%

0-60% of AMI, 2.5% of units

0-80% of AMI, 23.1% of units

0-120% of AMI, 73.7% of units
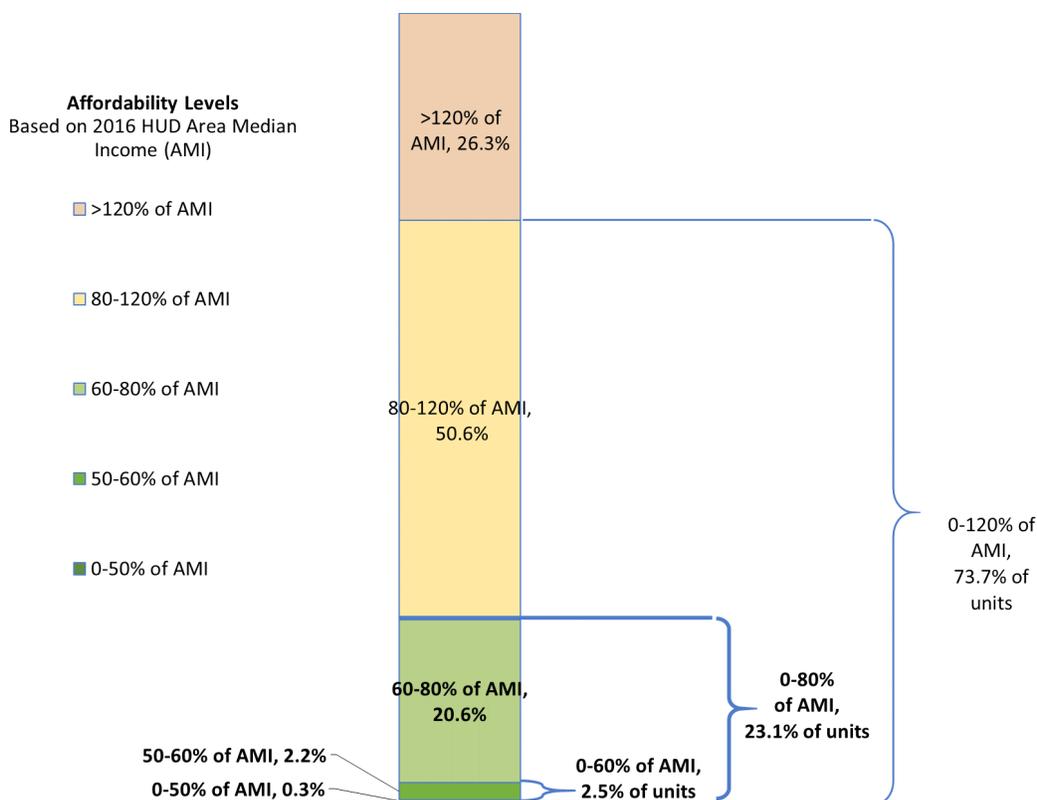
Exhibit 3.1–19 Affordability Levels of Unsubsidized Rental Units in Apartment Complexes with 20+ Units

Source: City of Seattle analysis of custom tabulations from Dupre+Scott Apartment Advisors. Based on D+S fall 2016 rent survey data.

According to ACS, buildings with 20 or more units comprise 49 percent of all renter-occupied units in the city and 89 percent of the renter-occupied units built between 2010 and 2015. Smaller buildings with between five and 19 units account for 22 percent of renter-occupied units in the city. Most of these smaller buildings are older; only three percent were built since 2010. Only about 10 percent of renter households live in buildings with two to four units.

Survey data show that 13 percent of units in small apartment buildings with four to 19 units are affordable to households with incomes 60 percent of AMI or less. Among small multi-plexes with two to four units, 13.5 percent of all units fall in this category. The percentage share of units renting at this affordability level in smaller buildings is significantly higher than among medium to large apartment buildings (three percent). Much of this difference comes from the fact that units in smaller buildings tend to be older, while newer construction comprises a much greater share of all units in medium to large apartment buildings.

This analysis of apartment housing costs shows that, under current conditions, very few low-income households can find unsubsidized market-rate housing (whether newly constructed or old) that is affordable to them. Additionally, many hosueholds able to find affordable housing are likely finding it in a neighborhood with lower housing costs.Exhibit 3.1–20 shows average monthly rents by unit type for 16 different market areas in Seattle. These same data are mapped in Exhibit 3.1–21. While rents differ significantly by area, they have been rising rapidly in all areas. The average annual rate of growth in average rents between 2010 and 2016 ranged between 4.8 percent in Riverton/Tukwila and 12.7 percent in Rainier Valley. Citywide, average rents have increased by 7.8 percent annually since 2010.

Exhibit 3.1–20 Average Monthly Rent by Unit Type in Apartment Complexes with 20+ Units, Fall 2016

Real Estate Market Area	All Units	Studio	1 Bed	2 Bed, 1 Bath	2 Bed, 2 Bath	3 Bed, 2 Bath	% Difference Compared to City Avg. (All Units)	Compound Avg. Annual Rate of Growth, 2010–2016 (All Units)*	Associated Urban Villages or Centers
Ballard	$1,784	$1,373	$1,699	$1,962	$2,647	$2,348	4%	8.1%	Ballard, Crown Hill (part)
Beacon Hill	$1,184	$910	$1,181	$1,415	$1,580		-31%	6.3%	N. Beacon Hill, N. Rainier (part)
Belltown, Downtown, S. Lake Union	$2,127	$1,439	$2,050	$2,452	$3,114	$4,034	24%	6.5%	Belltown, Commercial Core, Denny Triangle, SLU, Pioneer Square
Burien	$1,125	$780	$988	$1,133	$1,328	$1,667	-34%	5.6%	
Capitol Hill, Eastlake	$1,660	$1,272	$1,653	$2,083	$2,720	$3,450	-3%	7.9%	Capitol Hill, Eastlake, Madison–Miller
Central	$1,627	$1,280	$1,603	$1,836	$2,203	$2,772	-5%	7.2%	12th Ave, 23rd & Union–Jackson, Chinatown-ID
First Hill	$1,726	$1,238	$1,708	$2,173	$2,956	$4,081	1%	9.8%	First Hill, Pike/Pine
Greenlake, Wallingford	$1,742	$1,295	$1,654	$1,874	$2,404	$2,395	2%	6.4%	Fremont, Greenlake, Greenwood–Phinney Ridge (part), Wallingford
Madison, Leschi	$1,592	$1,048	$1,433	$1,933	$2,265		-7%	6.6%	
Magnolia	$1,574	$1,356	$1,401	$1,667	$1,915	$2,622	-8%	8.1%	
North Seattle	$1,324	$1,158	$1,213	$1,437	$1,618	$1,844	-23%	6.2%	Aurora–Licton Springs, Bitter Lake, Crown Hill (part), Greenwood–Phinney Ridge (part), Lake City, Northgate
Queen Anne	$1,745	$1,317	$1,667	$2,028	$2,591	$3,042	2%	7.4%	Upper Queen Anne, Uptown
Rainier Valley	$1,484	$1,388	$1,278	$1,496	$2,446	$1,218	-13%	12.7%	Columbia City, N. Rainier (part), Othello, Rainier Beach
Riverton, Tukwila	$1,088	$895	$962	$1,156	$1,248	$1,594	-37%	4.8%	South Park
University	$1,482	$1,215	$1,397	$1,461	$2,312	$2,349	-14%	6.7%	Ravenna, Roosevelt, University Campus, University District
West Seattle	$1,543	$1,294	$1,460	$1,605	$2,158	$2,711	-10%	7.4%	Admiral, Morgan Junction, W. Seattle Junction
White Center	$1,317	$981	$1,126	$1,313	$1,467	$1,635	-23%	5.6%	Westwood–Highland Park
CITY OF SEATTLE	**$1,715**	**$1,305**	**$1,641**	**$1,863**	**$2,436**	**$2,715**	—	7.6%	

Growth rates not adjusted for inflation.

Source: Dupre+Scott, 2017; BERK, 2017.

NORTH
SEATTLE
$1,324

BALLARD
$1,784

GREEN LAKE
WALLINGFORD
$1,742

UNIVERSITY
$1,482

MAGNOLIA
$1,574

Exhibit 3.1–21
Average Monthly Apartment
Rent by Market Area, Fall 2016

QUEEN
ANNE
$1,745

CAPITOL HILL
EASTLAKE
$1,660

Urban Centers/Villages

⬚ In MHA Study Area

□ Outside MHA Study Area

**Average Monthly Rent
by Market Area**

MADISON
LESCHI
$1,592

FIRST
HILL
$1,726

CENTRAL
$1,627

BELLTOWN
DOWNTOWN–SLU
$2,127

$1,088 – $1,317
$1,317 – $1,543
$1,544 – $1,627
$1,628 – $1,742
$1,743 – $2,127

*Source: Dupre+Scott, 2017;
BERK, 2017.*

BEACON
HILL
$1,184

WEST
SEATTLE
$1,543

WHITE
CENTER
$1,317

RAINIER
VALLEY
$1,484

RIVERTON
TUKWILA
$1,0888
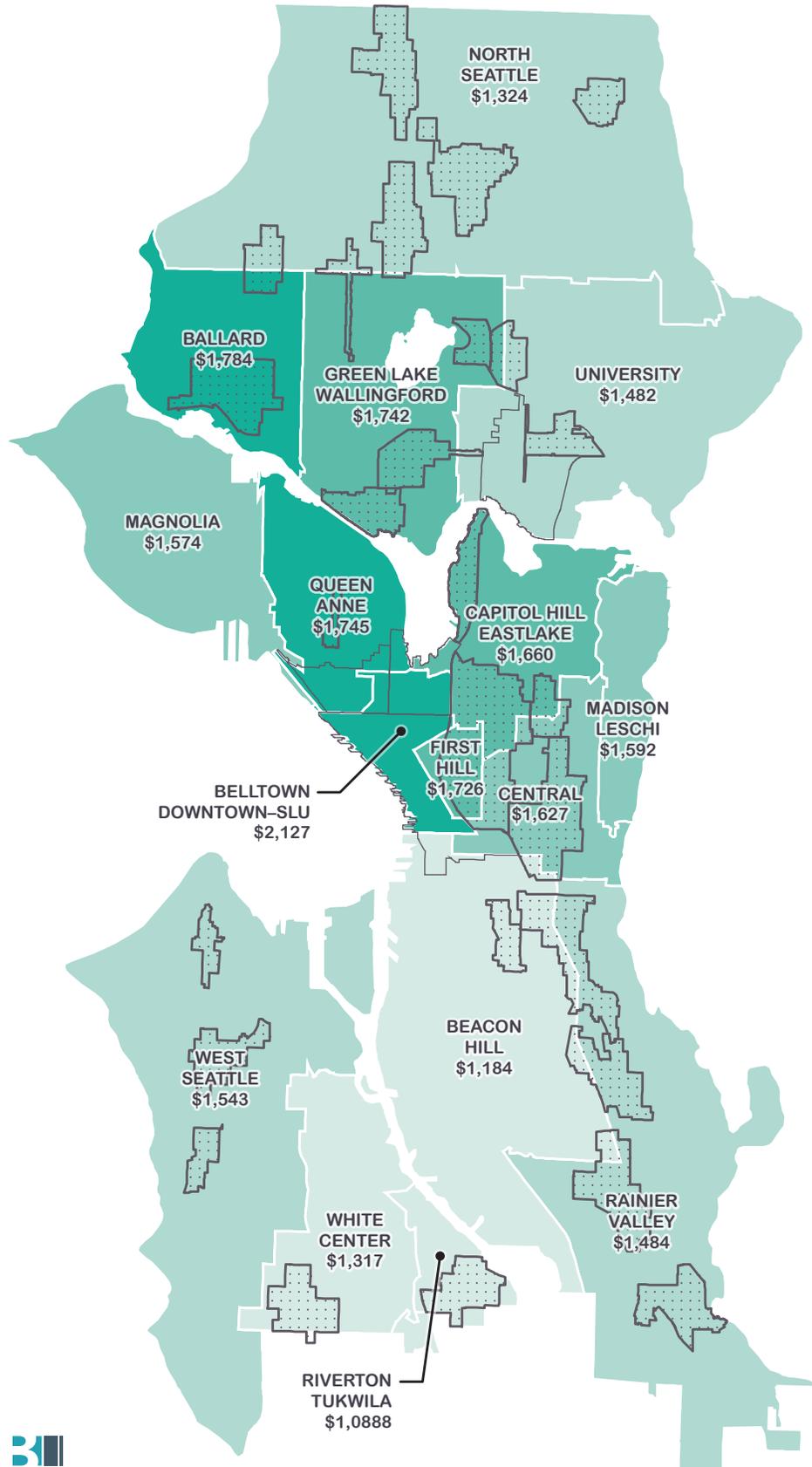
Key Findings—Housing Inventory

- 37 percent of all Seattle households are either cost burdened or severely cost burdened.

- 83 percent of low-income households are cost burdened.

- Renter households are significantly more likely to experience cost burden than owner-occupied households.

- The percentage of households with cost burden has risen since 2000 in all income categories, and the rise is most pronounced among renter households with incomes between 30 and 80 percent of AMI.

- Average rents have increased rapidly, by 55 percent between 2010 and 2016.

- Only three percent of market-rate apartment units in medium- to large-scale buildings are affordable with an income of 60 percent of AMI, and 13 percent of market-rate apartment units in small buildings are affordable to households with an income of 60 percent of AMI

- Older housing stock is generally less expensive than new housing.

- Average rents vary in the study area, with the highest rents found in Ballard, Green Lake / Wallingford, and Queen Anne.

- Rents have been rising in all areas of Seattle. In the city as a whole, rents have, on average, risen by 7.8 percent annually since 2010, with slowest annual growth in South Park and Westwood–Highland Park, and fastest growth in the Rainier Valley.

SUBSIDIZED HOUSING

Subsidized housing refers to housing provided to income-qualified households at below market-rate rents. These units are also commonly referred to as "rent- and income-restricted affordable housing" to clarify that the rent is legally restricted to be affordable to a household at a specified level of income, and that households must have incomes at or below the specified level to qualify for the housing. References to "affordable housing" in this chapter refer to subsidized rent- and income-restricted housing.

As of February 2017, the Seattle Office of Housing (OH) estimates there are a total of 28,000 subsidized rent-restricted units in the city, not including Multifamily Tax Exemption (MFTE) units (City of Seattle Office of Housing 2017). While market conditions for housing affordability change over time, subsidized housing is a stable source of units dedicated to providing affordable housing to low-income households. Most subsidized housing, except for MFTE, has a very long term of affordability of 50 years or greater, and when those long-term affordability covenants expire, OH reports that housing affordability covenants are usually extended. The pool of subsidized housing is likely an important factor contributing to the relatively stable share of very-low-income households in Seattle.

Seattle's inventory of subsidized housing is owned and/or funded by various entities and programs. In many cases subsidized units are funded by multiple sources. The primary subsidized housing providers and funding source in Seattle are described below.

Seattle Housing Authority

The Seattle Housing Authority's (SHA) low-income public housing program manages more than 6,153 public housing units in large and small apartment buildings; in multiplex and single-family housing; and in communities at New Holly, Rainier Vista, High Point, and Yesler Terrace. The Seattle Senior Housing Program has 23 apartment buildings— with at least one in every major neighborhood of the city—totaling approximately 1,000 units. These units offer affordable rent for elderly or disabled residents.

Also known as Section 8, the Housing Choice Voucher Program is a public–private partnership that provides vouchers (housing subsidies) to low-income households for use in the private rental housing market. It is

funded and regulated by the federal government. SHA administers more than 10,100 vouchers, not all of which are used within Seattle.

Among SHA households, 85 percent have very low incomes under 30 percent of area median income. 57 percent of households served are non-white.

Seattle Office of Housing

OH invests funds from the Seattle Housing Levy and other sources to create and preserve affordable homes. To date, the City has created and preserved nearly 14,000 affordable homes throughout the city. The largest source for the construction and preservation of rent- and income-restricted units comes from the Housing Levy, which has been in place since 1981. Voters renewed the Housing Levy in August 2016 and will provide $290 million for affordable housing over seven years. Levy funds are allocated to affordable housing providers annually on a competitive basis. Funds received through incentive zoning and MHA are allocated concurrently with these Levy funds.

Of the approximately 14,000 housing units in OH's rental program, about 52 percent serve households with very low incomes (30 percent of AMI and below), about 30 percent serve low-income households (31–50 perecnt of AMI). Fifty-seven percent of households the OH programs serve are people of color.

Washington State Housing Finance Commission

The Washington State Housing Finance Commission (WHSFC) allocates federal low income housing tax credits (LIHTC) through two programs: 9 percent LIHTC Program and its Bond/Tax Credit Program which uses multifamily housing bonds and 4 percent tax credit financing through LIHTC. Developers may apply to either program through a competitive process.

Multifamily Tax Exemption Program

The Multifamily Tax Exemption (MFTE) program provides a property tax exemption to developers and owners of multifamily rental and for-sale residential projects. For rental properties, the property owner is excused from property tax on residential improvements in exchange for rent-restricting at least 20 percent of the units for income-qualified households during the period of exemption. Under State law, the program currently provides a 12-year exemption. The program has resulted in 7,399 rent- and income-restricted units through the 2016 reporting period.

The majority of rent restricted MFTE units serve households with income between 60 and 80 percent of AMI.

Exhibit 3.1–22   Total MFTE Units in Approved Projects (Inclusive of Market-Rate and Rent- and Income-Restricted Units), 1998–2016*

MFTE Program Period	Total Units Produced Including Market Rate Units	Rent Restricted Units
1998–2002	474	191
2002–2008	1,176	726
2008–2010	5,925	1,656
2011–2015	17,487	3,934
2016	3,518	892
Total	*28,580*	*7,399*

* Based on approved applications, inclusive of rental and for-sale units.
Source: City of Seattle, 2017.

Exhibit 3.1–23   Total Distribution of MFTE-Restricted Units by Percent of Area Median Income (Rental Only) 1998–2016*

Income Level	MFTE Restricted Units	Percent of Total
0%–60% AMI	2,055	27.1%
>60% AMI–80% AMI	4,699	63.5%
>80% AMI–90% AMI	695	9.4%
Total	*7,399*	*100%*

* Based on approved applications.
Source: City of Seattle, 2017.

Key Findings—Subsidized Housing

- There are approximately 28,000 publicly funded low-income housing units in Seattle.

- Most publicly funded units serve households with incomes 30 percent AMI and below, including 82 percent of SHA units and 52 percent of OH-supported units.

- Publicly funded housing serves a high percentage of households of color, as 57 percent of both SHA and OH supported units are occupied by people of color.

- In addition to publicly funded units, there are currently about 7,400 MFTE rent- and income-restricted units.

- 64 percent of MFTE units serve households with incomes between 60 percent and 80 percent of AMI. The percentage of households receiving housing assistance has not changed significantly in recent years.

DISPLACEMENT

In the context of housing, displacement refers to a process wherein households are compelled to move from their homes involuntarily due to the termination of their lease or rising housing costs or another factor. This is a different phenomenon than when a household voluntarily makes a choice to move from their home. There are three different kinds of displacement occurring in Seattle. Physical displacement is the result of eviction, acquisition, rehabilitation, or demolition of property, or the expiration of covenants on rent- or income-restricted housing. Economic displacement occurs when residents can no longer afford rising rents or costs of homeownership like property taxes. Cultural displacement occurs when residents are compelled to move because the people and institutions that make up their cultural community have left the area.

The City has some data related to the physical displacement of lower-income households earning up to 50 percent of AMI. Economic displacement is much more difficult to measure directly. However, analysis of census data can provide important insights and a sense of the extent of displacement that is likely occurring. No formal data currently exists to measure cultural displacement, despite signs that it is occurring in some neighborhoods. While previous studies have examined issues like the loss of Black households over time by neighborhood in Seattle (Seattle OPCD 2016; City of Seattle 2017b), those losses could

be a result of physical displacement, economic displacement, and/or other factors. The physical or economic displacement of members of a community can also precipitate the cultural displacement of other members of the same community. Therefore, this analysis focuses only on physical and economic displacement.

To summarize findings, we reference the Displacement Risk and Access to Opportunity typology. Developed as part of the Seattle 2035 Growth and Equity Analysis, these two composite indices combine data about demographics, economic conditions, and the built environment. The Displacement Risk Index identifies areas of Seattle where displacement of marginalized populations is more likely to occur. It combines indicators of populations less able to withstand housing cost increases or face structural barriers to finding new housing; neighborhood assets and infrastructure; redevelopment potential; and median rents. The Access to Opportunity Index evaluates disparities in certain key determinants of social, economic, and physical well-being. It includes measures related to education, economic opportunity, transit, public services, and public health. (See Chapter 2 for more discussion on these indices or Appendix A for the complete Growth and Equity Analysis.)

Physical Displacement

Various circumstances can cause physical displacement, including demolition of existing buildings to enable the construction of new buildings on the same site. Another cause is rehabilitation of existing buildings; strong demand for housing can encourage the rehabilitation of existing buildings to attract higher-income tenants. Single-family houses are also rehabilitated, expanded, or replaced with larger houses; redevelopment in these cases tends to result in more expensive units without increasing the supply of housing.

The best data available on physical displacement in Seattle comes from records of households eligible for tenant relocation assistance.[7] Seattle's Tenant Relocation Assistance Ordinance (TRAO) requires developers to

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7   Not all households eligible for relocation assistance complete the TRAO application process. Factors complicating the process to complete a TRAO application may include language barriers or mental health. Data on the rate at which TRAO-eligible households complete the application process is not available. It should also be noted that TRAO data does not include all instances of eviction. Therefore, eviction as a cause of physical displacement is beyond the scope of this analysis. Furthermore, no information is available regarding what portion of households receiving TRAO are able to find other housing in the neighborhood or city. However, it is likely that many households displaced from a building also leave the neighborhood or city.

pay relocation assistance to tenants with incomes at or below 50 percent of AMI who must move because their rental will:

- Be torn down or undergo substantial renovation

- Have its use changed (for example, from apartment to a commercial use or a nursing home)

- Have certain use restrictions removed (for example a property is no longer required to rent only to low-income tenants under a Federal program)

Between 2013 and 2016, nearly 700 households were eligible to receive assistance through TRAO, about 175 households per year. Appendix A breaks down these households by cause of displacement as well as by neighborhood category with regards to displacement risk and access to opportunity. Citywide, 391 TRAO-eligible households were displaced due to demolition of their rental unit. This is 56 percent of all TRAO-eligible households during the period and about 98 households per year. Areas of the city with high access to opportunity had more TRAO-eligible households in total and more households displaced due to demolition.

Exhibit 3.1–24   Cause of Displacement Among TRAO-Eligible Households, 2013–2016

NEIGHBORHOOD CATEGORY		CAUSE OF PHYSICAL DISPLACEMENT (TRAO ELIGIBLE HOUSEHOLDS)				
Displacement Risk	Access To Opportunity	Demolition	Renovation	Restrictions Removed	Change of Use	Total Trao Eligible
High	High	127	62	57	33	279
High	Low	13	2		2	17
Low	High	204	61	25	44	334
Low	Low	47	15		6	68
Total (Citywide)		*391*	*140*	*82*	*85*	*698*

Source: City of Seattle, 2017; BERK, 2017.

Exhibit 3.1–25 compares TRAO-eligible households for whom demolition was the cause of displacement to the total number of units permitted for demolition by the neighborhood's displacement risk and access to opportunity. Citywide, 17 TRAO-eligible households were displaced due to demolition for every 100 units permitted for demolition. (In other words, approximately 17 percent of units permitted for demolition citywide had tenants with incomes at or below 50 percent of AMI.) However, this ratio varies by the neighborhood's displacement risk and access to

opportunity, from 26 in areas with high displacement risk and high access to opportunity down to just seven in areas with low displacement risk and low access to opportunity. It is notable that areas classified to have low displacement risk and high access to opportunity have a higher ratio than areas with high displacement risk and low access to opportunity. This suggests access to opportunity may be more strongly associated with the likelihood of development activity resulting in displacement than the neighborhood's displacement risk classification.

Exhibit 3.1–25   Demolitions that Result in Displacement of TRAO Eligible Households Within Income of 50% AMI or Less, 2013–2016

Displacement Risk	Access To Opportunity	Trao-Eligible Households Due to Demolition	Units Permitted for Demolition	Trao-Eligible Households per 100 Units Permitted for Demolition
High	High	127	492	26
High	Low	13	107	12
Low	High	204	1,075	19
Low	Low	47	683	7
Total (Citywide)		*391*	*2,357*	*17*

Source: City of Seattle, 2017; BERK, 2017.

TRAO records do not cover every instance of physical displacement caused by demolition of a rental unit. For example, the program does not track displacement of households with incomes greater than 50 percent of AMI. In addition, until recently the program did not have mechanisms to deter developers from economically evicting tenants prior to applying for a permit, in order to avoid the obligation to pay relocation benefits, nor did it provide additional assistance to ensure households with language or other barriers can successfully navigate the application process. Finally, this data does not reflect the physical displacement of SHA tenants who receive relocation benefits outside of the TRAO process, generally relating to the redevelopment of public housing.

Some demolitions occur in zones where the developer can replace an existing single-family home with a multi-unit structure such as townhomes or an apartment building. However, many demolitions involve the replacement of one older single-family home with a new single-family home. According to City permit data, between 2010 and 2016 29 percent of all units demolished were in Single Family zones. When excluding

downtown zones, 32 percent of all units demolished were in Single Family zones, or 139 demolitions per year on average. This indicates that demand for new single-family homes accounts for nearly one-third demolitions outside downtown.

Economic Displacement

Economic displacement occurs when a household is compelled to relocate due to the economic pressures of increased housing costs. As discussed in the housing affordability section, market-rate housing costs are largely driven by the interaction of supply and demand in the regional housing market. Lower-income households living in market-rate housing are at greater risk of economic displacement when housing costs increase. This vulnerability disproportionately impacts communities of color. As shown in Exhibit 3.1–9, a disproportionate number of households in communities of color are lower-income compared to White, non-Hispanic households. This disparity is even wider for African American households. These disparities are rooted in Seattle's history of redlining, racially restrictive covenants, and other forms of housing discrimination that contributed to racialized housing patterns and long-lasting wealth inequity due to barriers to homeownership. This history and the economic disparities that remain to this day result in greater risks of economic displacement among communities of color (Seattle OPCD 2016).

Without surveying individual households about their reason for moving, it is impossible to know exactly how many households are displaced due to the economic pressures of rising housing costs. However, using data from the Census and HUD, it is possible to determine if an area has gained or lost low-income households over time. Economic displacement is one possible explanation for a loss of low-income households over time. Other explanations include change in the income status of remaining households, loss of households due to household members passing away, or change in the demographic composition of the city, such as a greater share of young households with members early in their careers.

Exhibit 3.1–26 compares household estimates by income level from the 2000 Census to conditions captured in five-year estimates from the 2009–2013 ACS. During this period, Seattle gained over 28,000 households in total, an 11 percent increase. The income groups that grew the fastest were households with income above 120 percent of AMI and households with income at or below 30 percent of AMI. Households with income between 30 and 60 percent of AMI also increased in

Exhibit 3.1–26   Change in Number of Households by Income Level, 2000 compared to 2009–2013

	CITY OF SEATTLE		REMAINDER OF KING COUNTY	
	Change	Percent Change	Change	Percent Change
Total Households	28,129	11%	166,529	48%
Household Income ≤30% AMI	8,193	22%	29,731	95%
Household Income >30% to ≤60% AMI	3,856	9%	31,832	65%
Household Income >60% to ≤80% AMI	-12,362	-38%	-3,614	-9%
Household Income >80% to ≤100% AMI	-3,487	-11%	5,562	12%
Household Income >100% to ≤120% AMI	-1,725	-7%	7,661	20%
Household Income >120% AMI	33,654	38%	95,357	67%

Source: HUD CHAS (based on U.S. Census 2000 and ACS Five-Year Estimates, 2009–2013); BERK, 2017.

number, but at a slower rate. During this same period, Seattle lost over 12,000 households with income between 60 and 80 percent of AMI. It also lost households with income between 80 and 100 percent of AMI and between 100 and 120 percent of AMI. Overall, Seattle saw an increase in income disparity.

The remainder of King County also saw an increase in income disparity during this same period, with even more rapid growth among households with income at or below 30 percent of AMI and households with income above AMI. However, unlike Seattle, it also experienced rapid growth among households with income between 30 to 60 percent of AMI and more moderate growth among households with income between 80 and 100 percent of AMI. Like Seattle, the remainder of King County lost households in the 60 to 80 percent of AMI range. Unlike Seattle, the remainder of King County gained households with incomes 100 to 120 percent of AMI.

Exhibit 3.1–27 breaks down these findings based on the Displacement Risk and Access to Opportunity typology. Areas with high displacement risk grew considerably faster than areas with low displacement risk. The areas of Seattle that most rapidly gained very-low-income households (below 30 percent of AMI) are characterized by high displacement risk and low access to opportunity, such as Bitter Lake and Othello. These areas also gained low-income households (30 to 60 percent of AMI) faster than the remainder of the city. Areas with high displacement risk and high access to opportunity also saw strong gains in very-low-income households. But gains among low-income households were slower in these areas. Although

Exhibit 3.1–27 Percent Change in Number of Households by Displacement Risk and Access to Opportunity Typology, 2000 Compared to 2009–2013

	High Risk High Access	High Risk Low Access	Low Risk High Access	Low Risk Low Access	Citywide
Total Households	23%	19%	9%	6%	11%
Household Income ≤30% AMI	29%	59%	6%	20%	22%
Household Income >30% to ≤60% AMI	5%	21%	10%	7%	9%
Household Income >60% to ≤80% AMI	-31%	-40%	-38%	-41%	-38%
Household Income >80% to ≤100% AMI	5%	-11%	-12%	-15%	-11%
Household Income >100% to ≤120% AMI	11%	-18%	-7%	-11%	-7%
Household Income >120% AMI	86%	52%	34%	30%	38%

Source: HUD CHAS (based on U.S. Census 2000 and ACS Five-Year Estimates, 2009–2013); City of Seattle, 2017; BERK, 2017.

these areas gained lower-income households overall, some households in these areas likely experienced economic displacement.

All areas of Seattle lost households with incomes between 60 and 80 percent of AMI at a similarly rapid rate. Areas with low displacement risk generally lost households at this income level just as quickly as those with high displacement risk. This finding also applies to differences in access to opportunity.

Areas characterized by high displacement risk and high access to opportunity, such as First Hill–Capitol Hill, Northgate, Lake City, 23rd & Union–Jackson, and Columbia City, gained households with incomes between 80 and 120 percent of AMI while areas characterized by low access to opportunity and low displacement risk saw losses in this income category. While all areas of the city added households with incomes greater than 120 percent of AMI, those with high displacement risk and high access to opportunity gained these households most rapidly.

It is clear is that income disparity in Seattle has been growing as the city gains more households at the highest and lowest ends of the income spectrum. This is consistent with findings for the remainder of King County as well as studies of income inequality nationwide (Proctor, Semega and Kollar 2016, Pew Research Center 2016). It is therefore likely that trends in Seattle are shaped, at least somewhat, by broader economic trends including the loss of middle-income jobs nationwide. In Seattle, economic displacement of low-, moderate-, and middle-income households is likely also contributing to this citywide change. However, other possible explanations exist too, and the relative contribution of

economic displacement is impossible to measure. For instance, the reduction in households with incomes between 60 and 120 percent of AMI could be due to some households changing in income status, moving them into a higher- or lower-income category. Some households may have moved voluntarily, for instance to take a job in a different city. Some of the reduction among middle-income (80 to 120 percent of AMI) households might be explained by migration to more affordable cities elsewhere in King County, which saw gains at this income level.

There is also uncertainty about the causes of gains in the number of households at the lowest end of the income spectrum. These trends could be due to the increased availability of rent- and income-restricted housing in Seattle, which has grown steadily over time. Rent- and income-restricted units ensure housing opportunity for low-income households. As of February 2017, OH estimates 28,000 rent-restricted units in the city (City of Seattle Office of Housing 2017). Unfortunately, directly comparable and comprehensive historical data for the year 2000 is unavailable. However, some historical data is available. As noted above, between 1998 and 2016, Seattle gained 7,399 new affordable units through the MFTE program. While some have since converted to market-rate, many of these affordable hunits still provide housing for lower-income households.

HUD provides directly comparable historical data about the number of households that receive housing assistance from HUD programs (HUD 2017).[8] In 2000, an estimated 12,537 Seattle households received some form of HUD housing assistance. In 2011, 14,388 households received assistance, an increase of 1,851. While reliable data about the income of these households is unavailable, nearly all HUD programs target households with incomes at or below either 30 percent of AMI or 50 percent of AMI. So, a rough estimate of the percentage of low-income households receiving assistance from HUD housing assistance programs is possible by comparing the number of assisted households to the total number of households with incomes at or below 50 percent of AMI. Based on this assumption, about 19 percent of these households received HUD assistance. Comparing HUD-assisted housing data for

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8   The source of this data is HUD's Picture of Subsidized Housing, a database that aggregates information from nearly all HUD programs that provide for subsidized housing, including those administered by local agencies. The data includes tenant-based vouchers, public housing, and privately project-based housing that receive HUD subsidies. Excluded from this data is housing assisted through HUD's HOME and CDBG programs. In 2016 this database included 20,259 households in Seattle (HUD 2017).

2011 to household estimates by income level for the 2009–2013 period indicates the percentage has not changed citywide.

To develop a more accurate estimate of the potential scale of economic displacement in Seattle, it would be best to account for all assisted households and focus instead only on households living in market-rate units. While data limitations prevent an estimate of this number in past years, it is possible to estimate the change in number of low-income households that do not receive HUD assistance by subtracting the number of HUD-assisted households from the total number of households with income at or below 50 percent of AMI. Exhibit 3.1–28 shows the change in this count by the Displacement Risk and Access to Opportunity typology based on an analysis at the census tract level for the years 2000 and 2009–2013. In the city as a whole, tracts in all groups gained households during this period. However, areas with high displacement risk and low access to opportunity gained these households significantly faster than the remainder of the city.

Exhibit 3.1–28   Change in in the Number of Households Without HUD Assistance, 2000 to 2009–2013

Household Income	High Risk High Access	High Risk Low Access	Low Risk High Access	Low Risk Low Access	Total
≤50% AMI (Total Change)	1,625	2,845	887	1,877	7,235
≤50% AMI (Percent Change)	10%	38%	4%	11%	16%

Source: HUD CHAS (based on Census 2000 and ACS Five-Year Estimates, 2009–2013); HUD, 2017; City of Seattle, 2017; BERK, 2017.

Housing Development and Change in Low-Income Households

As Seattle grows, many residents are concerned about the potential relationships between new development and economic displacement at the neighborhood scale. Citywide, new development is critical to reduce the housing shortage and the competition for housing that increases housing costs. At the neighborhood scale, growth can also increase the number and diversity of housing choices through the creation of market-rate housing, and growth may also include the addition of rent- and income-restricted housing through subsidized housing investments. In some circumstances, this can make a neighborhood more affordable to low- and moderate-income households than it had been before. However, it is also possible that new development can contribute to economic displacement at the neighborhood scale. This can occur if new housing

brings about amenities that make the neighborhood more attractive to higher-income households, driving up rents and housing prices.

While it is hard to predict the impact of new development on economic displacement at the neighborhood scale, it is possible to examine the historical relationship between housing growth and change in the number of low-income households. Exhibit 3.1–29 shows the change in the number of households with incomes of 50 percent of AMI or less between 2000 and 2009–2013 for all census tracts in Seattle.[9] It also shows net new housing units by census tract between 2000 and 2011. This overlay shows many examples of neighborhoods with a great deal of new housing production as well as significant gains in the number of low-income households, including Ballard, Bitter Lake, Lake City, Northgate, Othello, South Lake Union, and the University District. The map also shows relatively less new housing production in neighborhoods that lost low-income households.

Exhibit 3.1–30 shows a scatterplot of the same data displayed in the map above. Each dot represents a census tract. The chart shows that areas with more housing production are not associated with a loss of low-income households. In fact, the opposite is true. Tracts that experienced more net housing production were somewhat more likely to gain low-income households. Tracts that experienced very little new housing development were about as likely to gain low-income households as they were to lose low-income households.

It is possible that other factors related to new housing production could explain these findings. For instance, some of the change in low-income households is likely due to the production of new subsidized housing. To analyze this, we compared historical the change in the number of low-income households that do not receive any HUD assistance to net housing production. The findings of this analysis were consistent: Tracts with more housing production were slightly more likely to see an increase in low-income households that do not receive assistance from HUD programs.[10] Unfortunately insufficient historical data is available to measure the impact of new subsidized housing production that is not HUD assisted.

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9   Unfortunately, this data does not reflect the most recent years of accelerated housing development, during which communities have increasingly elevated displacement as an urgent issue.

10 The correlation coefficient between housing production and change in number of low-income households that do not receive HUD assistance is R=0.15425.
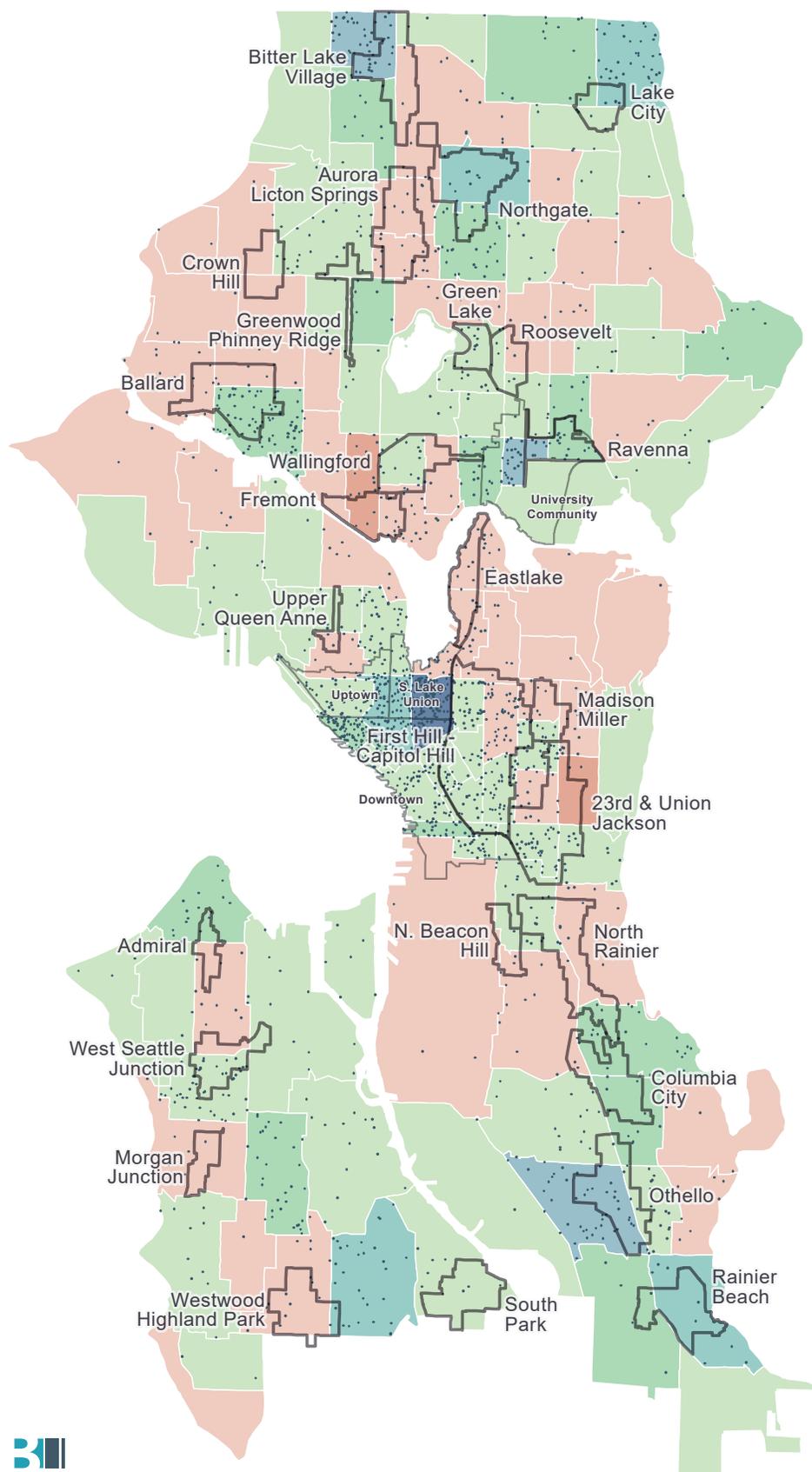
Exhibit 3.1–29
Change in the Number of
Low-Income Households
by Census Tract, 2000 to
2009–2013, and Net Housing
Production, 2000 to 2011

Urban Centers/Villages

☐ In MHA Study Area

☐ Outside MHA Study Area

**Housing Production
(Net Change in Housing
Units 2000–2011)**

∴ 1 Dot = 20 Units

**Change in Households with
Income ≤50% AMI, 2000 to
2009–2013**

■ -400 to -200
■ -200 to 0
■ 0 to 200
■ 200 to 400
■ 400 to 600
■ 600 to 800
■ 800 to 1000
■ 1000 and above

*Source: HUD CHAS (based on
U.S. Census 2000 and ACS
Five-Year Estimates, 2009–
2013); OFM, 2016; BERK, 2017.*
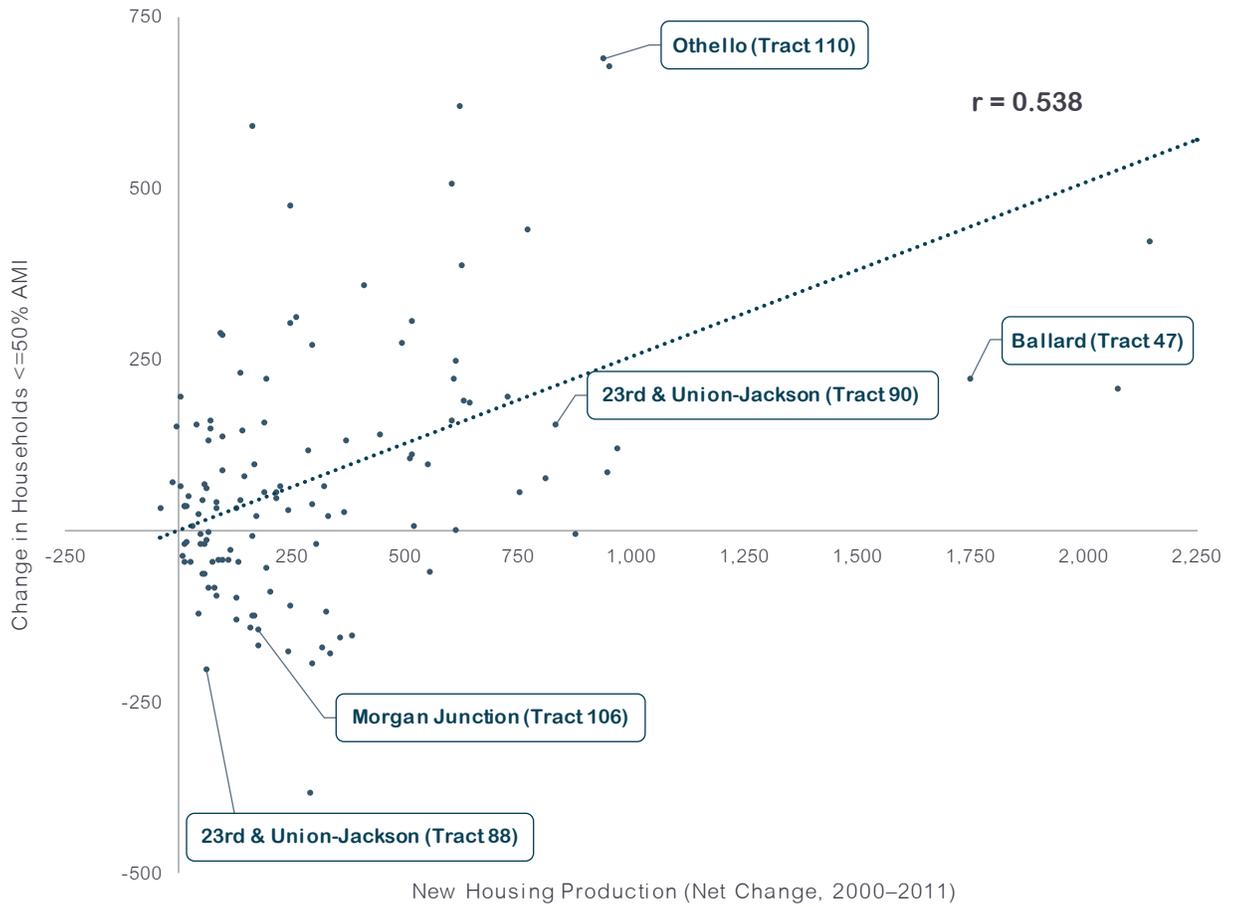
Exhibit 3.1–30   Gain or Loss of Low-Income Households and Net Housing Production
by Census Tract, 2000 Compared to 2009–2013

Source: HUD CHAS (based on U.S. Census 2000 and ACS Five-Year Estimates, 2009–2013); HUD, 2017; OFM, 2016; BERK, 2017.

It is possible the relationship between housing production and change in low-income households depends upon the level of displacement risk and access to opportunity in the neighborhood. Therefore, the data were grouped into four categories based on the Displacement Risk and Access to Opportunity typology. While these scatterplots show some variation by area type, in all cases there is a weak positive correlation.

**High Displacement Risk
High Access to Opportunity**

r = 0.314

Change in Households <=50% AMI

Net Housing Production

**Low Displacement Risk
High Access to Opportunity**

r = 0.650

Change in Households <=50% AMI

Net Housing Production

**High Displacement Risk
Low Access to Opportunity**

r = 0.644

Change in Households <=50% AMI

Net Housing Production

**Low Displacement Risk
Low Access to Opportunity**

r = 0.346

Change in Households <=50% AMI

Net Housing Production

Exhibit 3.1–31 Gain or Loss of Low-Income Households and Net Housing Production by Displacement Risk and Access to Opportunity Typology, 2000 Compared to 2009–2013

Source: HUD CHAS (based on U.S. Census 2000 and ACS Five-Year Estimates, 2009–2013); HUD, 2017; OFM, 2016; BERK, 2017.

In other words, census tracts with more housing production were slightly more likely to gain households with incomes at or below 50 percent of AMI. This same relationship can be found when comparing housing production to the change in number of households with income at or below 50 percent of AMI who are not assisted by HUD.

To summarize, this historical analysis indicates that net new housing production has not been associated with a loss of low income households at the census tract scale. Conversely, tracts that have received more net new housing production were more likely to see increases in low income households during the period of analysis. Additionally, this finding applies to tracts in all displacement risk and access to opportunity typologies. While there are examples of census tracts that do not conform to this general finding, they are not representative of patterns of change seen among census tracts citywide.

Another finding is that very few census tracts in high displacement risk areas experienced a loss of low-income households, and those that did lose these households didn't lose very many. On the other hand, many census tracts with low displacement risk lost low-income households. This indicates that economic displacement can occur in all areas of the city and may not be more likely to occur in areas classified as high displacement risk.[11]

There are limitations to using change in the number of low-income households as a proxy for economic displacement. For instance, the most recent data available summarizing households' income relative to AMI are for the 2009 to 2013 survey period. This period includes the most recent economic recession. Consequently, there may be a greater number of households in low-income categories due to the temporary loss of employment. Additionally, the survey data do not fully reflect the impacts of this most recent period of rapid rent increases and housing production (2011 through 2016). Therefore, it is quite possible that the number of economically displaced low-income households has increased in recent years. However, no available evidence suggests that the general relationship between new housing production and gain/loss of low-income households has fundamentally changed during the last few years. Finally, it is possible certain kinds of households, such as larger families, may be at greater displacement risk due to the relatively low supply of family-sized rental housing in Seattle. This analysis did not differentiate outcomes by household size or type.

11 It is important to note that the assessment of displacement risk level for tracts was made based on data collected at the end of this period of analysis. It may not be the case that all areas classified as high displacement risk would have been classified as high displacement risk in the year 2000 due to changing neighborhood characteristics over time.

Key Findings—Displacement

Physical displacement results when acquisition, rehabilitation, or demolition of property requires a household to move from their place of residence.

- An average of 98 households under 50 percent AMI were directly displaced by development activity annually, between 2013 and 2016. (This may be an underestimate for reasons noted above.)

- Based on TRAO data, about 17 households under 50 percent AMI were displaced per 100 demolitions.

- Areas classified as having low displacement risk / high access to opportunity had a higher ratio of low-income households displaced, than areas with high displacement risk and low access to opportunity. This suggests access to opportunity may be more strongly associated with the likelihood of development activity resulting in displacement than the neighborhood's displacement risk classification.

Economic displacement occurs when residents can no longer afford escalating housing costs. While it is impossible to know exactly how many households are displaced due to the economic pressures of rising housing costs, data changes in the number of lower-income households by neighborhood over time.

- Overall, Seattle has seen an increase in income disparity.

- Between 2000 and 2013, the number of high income households (above 120 percent of AMI) and very low income households (below 30 percent of AMI) grew fastest.

- Seattle lost households with low- to middle-incomes (60-80 percent of AMI, 80-100 percent of AMI, and 100-120 percent of AMI). The remainder of King County lost moderate-income (60-80 percent of AMI) households more slowly, and gained middle-income households (80-120 percent of AMI).

- Areas with high displacement risk and low access to opportunity, such as Bitter Lake and Othello, were the fastest to gain very-low-income households (below 30 percent of AMI) and low-income households (30 to 60 percent of AMI), though it's unclear the extent to which this can be attributed to development of low-income housing.

- Areas with high displacement risk and high access to opportunity, such as First Hill–Capitol Hill, Northgate, Lake City, 23rd & Union–Jackson, and Columbia City, gained households with incomes between 80 and 120 percent of AMI, while other areas of the city saw losses.

- Loss of low-income households does not correlate with areas of rapid housing development, although this data does not reflect the most recent development boom. Census tracts that experienced more net housing production were more likely to gain low-income households.

- Regardless of Displacement Risk and Access to Opportunity typology, the same relationship can be found when comparing housing production to the change in number of low-income households at the neighborhood scale.

3.1.2 IMPACTS

This section evaluates and compares the impacts that three alternatives could cause or contribute to by the year 2035. Impacts include effects on the supply of new market-rate and income-restricted affordable housing units; how the distribution of growth could incrase access to amenities and other neighborhood attributes that contribute to household success by locating housing in high opportunity areas; and the relative potential for displacement, particularly in areas of high displacement risk. For brevity, throughout this section the term "affordable units" will be used to describe rent- and income-restricted affordable housing.

IMPACTS COMMON TO ALL ALTERNATIVES

Housing Supply

The alternatives would result in varying impacts to supply of market-rate and affordable units in Seattle. Under all three alternatives, the study area would have sufficient development capacity to accommodate planned levels of residential growth during the planning period, as shown in Exhibit 3.1–32. Development capacity is a theoretical calculation of the total amount of development allowed under current zoning over an indefinite time horizon (see Appendix G for detail). From this perspective, there is theoretically ample zoning capacity to accommodate the minimum amount of household growth anticipated in the Seattle 2035 Comprehensive Plan. Alternatives 2 and 3 both provide greater capacity for housing than Alternative 1 No Action and anticipate greater housing growth over 20 years. If very strong demand for housing in Seattle continues over the study period beyond levels anticipated in the growth estimates of the Seattle 2035 Plan, Alternatives 2 and 3 are better able to accommodate heightened demand for housing. Net new housing supply associated with the action alternatives in 2035 is expected to be about 37 percent greater than Alternative 1.

Exhibit 3.1–32   Capacity for Housing Growth Compared to Housing Growth Estimate in Study Area

	Alternative 1 No Action	Alternative 2	Alternative 3
Housing Capacity	152,329	238,222	222,302
Estimated Housing Growth (2015–2035)	45,361	63,070	62,858

Source: City of Seattle, 2017.

The alternatives also differ based on the nature of the housing capacity provided, which could lead to greater or lesser amounts of certain types of housing units. Exhibit 3.1–33 shows net capacity for housing growth by zone category, and Exhibit 3.1–34 shows a percentage breakdowns. The greatest amount of capacity in all three alternatives is in the Commercial/ Mixed-Use zone categories, though both action alternatives create about 35 percent greater total capacity. Most housing produced in these zone categories is in higher-density mixed-use developments, usually with retail and commercial uses at the ground floor and apartments above. Pursuant to land use policies established in the Comprehensive Plan, under all the alternatives most of the capacity for new housing would be in this type of housing. However, the action alternatives shift some of the overall share of housing capacity into other zone categories, which may result in more variety of housing types. Both Alternative 2 and Alternative 3 more than double capacity in the Lowrise zone category, increase the share of total capacity for housing growth in the Lowrise zone categories. The action alternatives also provide more capacity for housing growth in the Residential Small Lot category compared to Alternative 1 No Action. Housing types in the Lowrise and Residential Small Lot zones are more likely to be ground-related like townhouses, rowhouses, duplexes, and small single-family home structures. The action alternatives could result in a greater share of these types of units, which are better suited to families with children and larger households compared to Alternative 1 No Action.

Exhibit 3.1–33 Net Capacity for Housing Growth by Zone Category

Zone Category	Alternative 1 No Action	Alternative 2	Alternative 3
Residential Small Lot	754	3,970	4,032
Lowrise	20,678	49,174	42,898
Midrise & Highrise Residential	11,334	22,520	14,695
Commercial / Mixed-Use	119,563	162,558	160,677

Source: City of Seattle, 2017.

Exhibit 3.1–34 Percent of Total Net Capacity for Housing Growth by Zone Category

Zone Category	Alternative 1 No Action	Alternative 2	Alternative 3
Residential Small Lot	0%	2%	2%
Lowrise	14%	21%	19%
Midrise & Highrise Residential	7%	9%	7%
Commercial / Mixed-Use	78%	68%	72%

Source: City of Seattle, 2017; BERK, 2017.

Commercial Development

The model used to estimate growth in each alternative includes commercial growth as well as residential growth. In zones that allow commercial uses or a mix of commercial and residential uses, the capacity for commercial development is calculated and used to estimate future job growth by urban village and throughout the study area. Where a mix of uses are allowed, the housing and job growth mix is estimated using zone-specific ratios of commercial and residential development derived from historical data. Under the action alternatives, commercial development would generate affordable housing through MHA for commercial development. Estimating future job growth allows for calculation of the amount of affordable housing commercial development would generate through MHA-Commercial requirements. Appendix G has more detail on this methodology.

New commercial development can contribute to the need for rent and income-restricted housing. New commercial development can create new low-wage jobs, directly generating demand for housing affordable to low-income people near those jobs. New commercial development can also create new high-wage jobs, and those high-income earners can patronize other businesses that offer low-wage jobs, thereby indirectly generating demand for low-income housing. While this EIS does not quantitatively analyze the additional need for low-income housing from commercial development in each alternative, it is a consequence of commercial development and a contributing factor to the need for rent- and income-restricted housing documented in the affected environment section of this chapter.

Housing Affordability

The affordability of market-rate housing would continue to be a concern and a burden for many residents under all three alternatives, notwithstanding implementation of MHA. This is a result of economic forces beyond the reach of MHA. Ultimately, housing prices and rents are likely to be driven upward by demand generated by Seattle's strong job market and attractive natural and cultural amenities. Even with substantial new development capacity, Seattle's limited land area would likely continue to contribute to upward pressure on housing costs. Low vacancy rates and tight rental housing inventory contribute to higher rents, especially when demand is fueled by a highly educated, high-wage workforce. However, compared to Alternative 1 No Action, the action alternatives both provide more development capacity and about 37 percent greater

expected housing supply. This additional capacity and supply is likely to reduce upward pressure on rents and housing prices. While this is likely to improve housing affordability at all income levels, the market is not likely to provide housing affordable to those earning below 60 percent of AMI under any alternative. As noted in Exhibit 3.1–19, most market-rate housing of any age is currently unaffordable to low- and very-low-income households (60 percent of AMI and below). More market-rate housing could reduce the competition for scarce housing among moderate-, middle-, and upper-income households, potentially making more housing available at affordable prices for moderate- and middle-income households, compared to Alternative 1 No Action, though insufficient affordable housing to meet the need for such housing among low-income households would persist. This impact of the action alternatives is notable given the finding in Exhibit 3.1–26 that income disparity is increasing in Seattle and that the city has lost households in the moderate and middle-income levels (60–120 percent of AMI) in recent years.

The distribution of development outlined in the alternatives would also influence cost and affordability in other ways:

- **Land value:** The initial land cost for developers contributes to the total cost of each housing unit. Land values vary across the city, with the highest values found downtown and generally decreasing outward. However, land values are also affected by zoning and access to amenities. Zoning changes under the action alternatives that increase allowed floor area ratio and density of development have potential to reduce land costs per unit.

- **Proximity to transportation and services:** Areas with the greatest proximity to neighborhood amenities, jobs, and transportation tend to have higher land values and relatively higher housing costs. However, proximity to transit and services also provides households more transportation options that can decrease household spending on transportation.

- **Construction costs:** The cost of construction influences sale and rental prices. Under all alternatives, building material costs would be roughly equal across the city, but the type of construction would not. Generally, taller buildings with steel framing are more expensive to build per square foot than shorter, wood-framed structures. However, this expense can be partially offset by lower land costs per unit since taller buildings allow for more units on the same area of land. Compared to Alternative 1 No Action, both action alternatives more than double the amount of land area zoned to allow building heights greater than 85 feet (the typical maximum allowed for wood frame

construction). Alternative 2 includes about 10 percent more land area zoned for buildings greater than 85 feet compared to Alternative 3. Both action alternatives also increase the amount of land zoned for more cost-effective wood frame construction, such as Lowrise and Residential Small Lot, as shown in Exhibit 3.1–33.

New Income-Restricted Affordable Unit Production

For low-income households, the most significant and positive impact on housing affordability will be through the production of new affordable units through MHA[12] or the existing Incentive Zoning (IZ) program. The City estimated the number of new affordable units that would be generated under each alternative as well as the total number expected to be built within the study area. The word "generated" describes MHA or IZ performance units (i.e, those built on- or off-site in new market-rate buildings in the study area) and units funded with MHA or IZ payments generated by new development in the study area. The number of affordable units generated under each action alternative is the direct result of MHA implementation in the study area.

However, MHA has already been implemented in several neighborhoods outside the study area, including Downtown, South Lake Union, and the University District. MHA payments generated by development in these neighborhoods would also fund affordable units in the study area under all three alternatives. Therefore, this analysis also estimates the total number of new affordable units built in the study area under each alternative, including those generated by growth outside the study areas.

Exhibit 3.1–35 shows the total new affordable units expected to be generated from development in the study area and those expected to be built in the study area. While all alternatives would generate some new rent- and income-restricted units, the action alternatives would generate about 28 times more rent- and income-restricted units. Considering all affordable units built in the study area, the action alternatives are expected to result in 135–138 percent more rent- and income-restricted housing built in the study area compared to Alternative 1 No Action.

Exhibit 3.1–35 shows the estimated number of affordable units generated and built in the study area through MHA and IZ. It also shows the estimated number of affordable units generated by growth citywide

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12 As described in Chapter 2, MHA includes two programs: MHA-R for residential development, and MHA-C for commercial development. Under the action alternatives, both residential and commercial development would generate new affordable housing. See Appendix G for details.

Exhibit 3.1–35 Estimated New MHA Affordable Housing Units: Generated by Growth in the Study Area and Total Built in the Study Area, 20 Years

	New Affordable Units Generated by Growth in the Study Area	Total New Affordable Units Generated by Growth Citywide and Built in Study Area
Alternative 1 No Action	205	3,155
Alternative 2	5,717	7,513
Alternative 3	5,582	7,415

Source: City of Seattle, 2017; BERK, 2017.

and built in the study area. For Alternative 1, the only affordable units generated by growth in the study area would come from the existing IZ program. The action alternatives implement MHA in the study area, resulting in a large increase in the number of units generated by growth in the study area. These units generated include both performance units (those built on- or off-site in new market-rate buildings) and payment units. For analysis purposes, we assume that the distribution of payment units to each urban village is proportional to that urban village's share of the 20-year citywide residential growth estimate in each EIS alternative. More payment units are expected in the action alternatives because more MHA payment funds would be collected if MHA is implemented in the study area. Alternative 1 No Action assumes MHA is implemented only in the Downtown/South Lake Union, University District, and Uptown subareas (see Chapter 2 for details). Alternative 2 is expected to result in 7,513 affordable units, the greatest amount of new affordable housing in the study area. This is 4,370 more affordable units than expected in Alternative 1 No Action. The total for Alternative 3 is just 98 units less than Alternative 2.

Exhibit 3.1–36 shows affordable housing units built in the study area through the performance and payment options with breakdowns by urban village and Displacement Risk and Access to Opportunity typology. The purpose of this exhibit is to provide rough estimates of the total quantity of new affordable housing that could be created in each urban village, including affordable housing funded from development outside the study area. Performance units are those built on-site in new market-rate buildings. For Alternative 1 No Action, performance units would be created through the existing IZ program; for the action alternatives, performance units would be created through MHA. Payment units would be built using funds from MHA in all three alternatives, and additionally funds from commercial development under the existing IZ program in Alternative 1 No Action. For Alternative 1 No Action,

Exhibit 3.1–36 Estimated New Affordable Units Built by Urban Village and Displacement Risk and Access to Opportunity Typology, 20 Years

	PERFORMANCE UNITS BUILT			PAYMENT UNITS BUILT			TOTAL AFFORDABLE UNITS BUILT		
	Alt. 1	Alt. 2	Alt. 3	Alt. 1	Alt. 2	Alt. 3	Alt. 1	Alt. 2	Alt. 3
High Displacement Risk & Low Access to Opportunity									
Rainier Beach	0	16	13	34	67	59	34	83	72
Othello	0	25	12	61	134	104	61	158	116
Westwood-Highland Park	0	27	18	40	92	77	40	119	94
South Park	0	16	13	27	63	53	27	80	67
Bitter Lake Village	0	31	30	88	149	146	88	179	175
Subtotal	*0*	*115*	*86*	*250*	*505*	*439*	*250*	*620*	*525*
Low Displacement Risk & High Access to Opportunity									
Green Lake	0	14	33	40	77	118	40	91	152
Roosevelt	15	1	12	58	97	123	73	98	135
Wallingford	0	38	69	67	137	201	67	175	270
Upper Queen Anne	0	16	20	34	58	62	34	74	83
Fremont	0	27	54	88	155	199	88	182	253
Ballard	0	107	123	270	536	564	270	644	687
Madison-Miller	0	18	32	54	115	144	54	133	177
Greenwood-Phinney Ridge	34	13	14	34	59	59	68	72	73
Eastlake	0	13	34	54	99	144	54	112	178
West Seattle Junction	0	6	10	20	37	45	20	42	56
Admiral	16	63	77	155	298	325	172	361	402
Crown Hill	0	29	63	47	111	173	47	140	236
Ravenna (2)	0	45	42	92	167	159	92	212	201
Subtotal	*65*	*390*	*584*	*1,014*	*1,947*	*2,319*	*1,079*	*2,337*	*2,903*
High Displacement Risk & High Access to Opportunity									
Columbia City	0	23	17	54	118	102	54	141	119
Lake City	0	23	21	67	113	111	67	137	133
Northgate	0	104	101	202	398	387	202	502	488
First Hill-Capitol Hill	0	258	115	405	1,009	704	405	1,267	819
North Beacon Hill	14	17	10	27	70	53	41	87	63
North Rainier	4	31	26	67	135	123	72	166	149
23rd & Union-Jackson	0	71	48	108	262	213	108	333	261
Subtotal	*18*	*528*	*339*	*931*	*2,105*	*1,693*	*949*	*2,633*	*2,031*
Low Displacement Risk & Low Access to Opportunity									
Aurora-Licton Springs	0	30	36	67	119	125	67	149	161
Morgan Junction	0	24	40	27	73	105	27	97	145
Subtotal	*0*	*53*	*76*	*94*	*193*	*230*	*94*	*246*	*307*
Outside Villages	12	284	271	771	1,393	1,377	783	1,677	1,649
Study Area Total	**83**	**1,371**	**1,356**	**3,060**	**6,142**	**6,058**	**3,155**	**7,513**	**7,415**

For Alternative 1, these numbers reflect affordable homes from MHA payment in areas outside of the study area and Incentive Zoning (IZ) under existing regulations in the study area. MHA estimates assume that MHA payments are allocated proportional to individual areas based on their share of citywide housing growth.

Source: City of Seattle, 2017; BERK, 2017.

3.51

payment units would be created using MHA payment funds generated from development in Downtown, South Lake Union, and the U District; for the action alternatives, payment units would be created using funds from development in and outside the study area. As indicated in the discussion of Exhibit 3.1–35, payment units are assumed to be distributed proportionally to urban villages based on their share of citywide growth and are not directly related to the amount of payments generated by development in the urban village.[13]

To demonstrate the measurable benefit of rent-restricted housing for low-income households, Exhibit 3.1–37 compares 2016 average market rents by apartment type to rents for MHA units. MHA unit rents are set by HUD based on a 60 percent of AMI household in the Seattle region.[14] The savings vary considerably by unit type. An MHA studio would rent for $356 less than the average market-rate studio, a 27 percent savings. However, a three-bedroom MHA unit would rent for about $1,300 less than a market-rate unit, a 48 percent savings.

Exhibit 3.1–37   Market-Rate and MHA Rent Comparison of Costs

Apartment Type	Average Market Rent (Citywide)	MHA Affordable Rent	Monthly Savings if Living in an MHA Affordable Unit	% Savings Compared to Average Market Rate
Studio	$1,305	$949	$356	27%
1 Bedroom	$1,641	$1,017	$624	38%
2 Bedrooms, 1 Bath	$1,863	$1,219	$644	35%
3 Bedrooms	$2,715	$1,409	$1,306	48%

Source: Dupre+Scott, 2017; HUD, 2016; BERK, 2017.

Displacement

This section evaluates the potential for displacement associated with the new housing and commercial growth expected to occur under each alternative during the planning period, 2015–2035. The first part estimates the number of demolished units that could occur as a result of redevelopment activity. The second part estimates physical displacement

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13 *Accordingly, the model assumes that the subareas outside the study area like Downtown/South Lake Union would generate the same amount of MHA payments under all alternatives, but the number of MHA affordable units built in these subareas would vary across alternatives because total MHA payments citywide and total residential growth by urban village both vary across alterantives.*

14 *MHA can also create small rental units at 40 percent of AMI and ownership units at 80 pecent of AMI, but the majority are expected to be rental units at 60 percent of AMI.*

associated with demolished units. Next, we estimate other forms of physical displacement not expected to vary by alternative. Finally, we discuss potential economic, cultural, and commercial displacement impacts.

Demolition

As discussed in 3.1.1 Affected Environment, rental and owner-occupied housing units are demolished each year in Seattle as older homes are replaced by newer buildings. Most future growth in the city, under any of the alternatives including Alternative 1 No Action, will involve redevelopment of sites with existing housing and commercial buildings; existing residents and businesses in these buildings will be displaced. Increasing growth in particular zones or urban villages can result in the redevelopment of more sites, increasing potential demolition.

Some, but not all, demolitions result in the displacement of low-income households. This section estimates total demolitions in the study area by the Displacement Risk and Access to Opportunity typology and compares them to net new and affordable unit production. The following section draws on historical trends to estimate the number of physically displaced low-income households as a result of demolition.

Demolitions associated with each alternative fall into three categories. First, there are demolitions for which permits have been issued by the City up to 2015, some of which have occurred. These demolitions have occurred or will occur under all alternatives and are associated with approved building permits that are therefore not subject to MHA requirements. The number of demolitions in this category reflects the rapid pace of growth in recent years and permits in the pipeline.

Second, there are demolitions associated with growth that has not yet been permitted. Estimating the number of demolitions in this category is more difficult. Two different methods are used to provide a range of possible outcomes:

- **Parcel allocation model:** This demolition estimate comes from a redevelopment model that allocates future growth to specific parcels identified as redevelopable. The number of existing housing units on those parcels is the estimate of demolished units resulting from growth in those urban villages.

- **Historical growth trends:** This demolition estimate reflects the historical ratio of net new housing units to demolished units based on actual permit data from 2010–2016 for each zone in Seattle.

Predicting exactly where and when redevelopment will occur is impossible. Including both estimates provides context. The parcel allocation model is based on a detailed parcel-scale analysis; however, it makes assumptions about which parcels are likely to be available for redevelopment. The historical trends method reflects actual recent development trends citywide, but it ignores current conditions in each neighborhood as well as changes in development capacity under the action alternatives. For a more detailed discussion of these methods, see Appendix G.

The third category of demolitions are those expected to occur in Single Family zones with no net gain in housing production. In recent years, 32 percent of demolished units in Seattle outside of downtown have been in Single Family zones, wherein an existing single-family home is replaced by a new single-family home. Both action alternatives rezone areas currently zoned Single Family. An accurate comparison of alternatives must also estimate the number of demolitions that would occur in these single-family areas under Alternative 1 No Action. Between 2007 and 2016, an average of 10.4 demolitions occurred in the proposed rezone areas per year. This analysis assumes that this rate of demolitions would continue under Alternative 1 No Action until 2035. For more detail, see Appendix G.

Exhibit 3.1–38 estimates the number of units that may be demolished in the study area under each alternative between 2015 and 2035 compared to net new units built: market-rate and MFTE,[15] and affordable units produced through either IZ or MHA. According to estimates generated using the parcel allocation model, the action alternatives are expected to result in fewer demolitions than Alternative 1 No Action. This is due in part to the expected number of demolitions in Single Family zones that would result in no net gain in housing. However, the historical trends estimates indicate that both action alternatives would result in slightly more demolitions in the study area than Alternative 1 No Action. The rightmost column shows the ratio of net new units to demolished units. This ratio is higher in the action alternatives compared to Alternative 1 No Action. This means each unit demolished would result in more new housing under the action alternatives than under Alternative 1 No Action. The action alternatives are also expected to provide significantly more new affordable housing.

The demolition estimates presented above are for a 20-year timespan. Per year, Alternative 1 No Action is expected to result in between 82

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15 The Multifamily Tax Exemption (MFTE) program is described in under Mitigation Measures in 3.1.3 Mitigation Measures.

Exhibit 3.1–38 New Housing Growth Compared to Demolished Units, 2015–2035

AREA TYPOLOGY			DEMOLISHED UNITS			
Displacement Risk	Access to Opportunity	Net New Units Built	Already Permitted	Additional (Parcel Allocation Model Estimates)	Additional (Historical Trends Estimates)	Ratio of Net New to Demolished Units*
Alternative 1 No Action						
High	High	13,800	461	229	715	10
Low	High	15,028	319	719	810	11
High	Low	3,700	63	217	401	6
Low	Low	1,400	33	227	292	3
Outside Urban Villages		**11,433**	**358**	**246**	**680**	**9**
Total in Study Area		**45,361**	**1,234**	**1,638**	**2,898**	**10**
Alternative 2						
High	High	21,925	461	366	1,037	14
Low	High	19,839	319	828	920	16
High	Low	5,143	63	60	288	14
Low	Low	1,963	33	98	121	13
Outside Urban Villages		**14,199**	**358**	**68**	**665**	**14**
Total in Study Area		**63,070**	**1,234**	**1,420**	**3,030**	**14**
Alternative 3						
High	High	17,899	461	90	777	14
Low	High	23,880	319	1,271	1,188	15
High	Low	4,520	63	82	248	14
Low	Low	2,373	33	122	149	13
Outside Urban Villages		**14,186**	**358**	**17**	**661**	**14**
Total in Study Area		**62,858**	**1,234**	**1,582**	**3,023**	**14**

* Notes: Estimates of additional demolished units were developed using two different methods described in Appendix G. Ratio of net new to demolished units is based on the already permitted demolitions plus the historical trends estimate of additional demolitions.

Source: City of Seattle, 2017; BERK, 2017.

and 145 demolished units within in study area beyond what is already permitted. Alternative 2 is expected to result in between 71 and 151 demolished units per year. Alternative 3 is expected to result in between 79 and 151 demolished units.

Physical Displacement of Low-Income Households Due to Demolitions

As noted above, some but not all housing units estimated to be demolished by the year 2035 are likely to result in the physical

displacement of low-income households. Drawing upon the TRAO analysis in 3.1.1 Affected Environment, we estimate the number of low-income households who could be displaced due to demolitions. Exhibit 3.1–25 presents the ratio of TRAO-eligible households with demolition as reason for displacement to total permitted demolitions by Displacement Risk and Access to Opportunity typology. Exhibit 3.1–39 uses these same ratios and the demolition estimates presented above to estimate physically displaced households with incomes at or below 50 percent of AMI between 2015 and 2035. This table focuses solely on displacement associated with estimated demolitions not already permitted by the City. Already-permitted demolitions do not differ among the alternatives and would not be subject to MHA under any alternative. Removing them from this analysis also allows for better comparison to affordable unit production. As noted in the analysis of TRAO data, these numbers do not reflect displacement of households with incomes above 50 percent of AMI or households who should have received TRAO but did not for various reasons.

The historical trends estimates for both action alternatives would result in more low-income households experiencing physical displacement than Alternative 1 No Action. This is consistent with the expected number of demolished units in each alternative. However, in all three alternatives, the number of new affordable units built would exceed the number of displaced low-income households by a large margin. The rightmost column shows the ratio of new affordable units to the higher historical trend estimate of displaced low-income households. It shows that the action alternatives would provide 13 new affordable housing units in the study area for each low-income household displaced. Alternative 1 No Action provides six new affordable units per displaced low-income household.

The comparison of estimated physically displaced-low income households to new affordable units built in Exhibit 3.1–39 provides a sense of impacts as they may be experienced at the neighborhood scale. Another way to evaluate impacts is to compare the same displacement estimates to the total impact of the alternatives on affordable housing production citywide. Exhibit 3.1–40 visualizes this comparison. This chart includes the number of new affordable units generated from growth inside the study area. Alternative 1 No Action is expected to generate significantly less new affordable housing in the study area than either estimate of displaced low-income households. Both action alternatives are expected to generate nearly 10 times more new affordable housing than the higher historical trends estimate of displaced low-income households.

Exhibit 3.1–39 Estimated Physically Displaced Low-Income Households Due to Demolitions Compared to Affordable Units Built, 2015–2035

AREA TYPOLOGY			DISPLACED HOUSEHOLDS ≤50% OF AMI DUE TO DEMOLITIONS NOT ALREADY PERMITTED			
Displacement Risk	Access to Opportunity	Assumed % of Demolished Units Resulting in Displacement*	Parcel Allocation Model Estimate	Historical Trend Estimate	New Affordable Units Built IZ or MHA	Ratio of Affordable Units to Displaced Households ≤50% of AMI
Alternative 1 No Action						
High	High	26%	59	185	949	5
Low	High	19%	136	154	1,079	7
High	Low	12%	26	49	250	5
Low	Low	7%	16	20	94	5
Outside Urban Villages		**17%**	**41**	**113**	**783**	**7**
Total in Study Area			**278**	**520**	**3,155**	**6**
Alternative 2						
High	High	26%	94	268	2,633	10
Low	High	19%	157	175	2,337	13
High	Low	12%	7	35	620	18
Low	Low	7%	7	8	246	29
Outside Urban Villages		**17%**	**11**	**110**	**1,677**	**15**
Total in Study Area			**277**	**596**	**7,513**	**13**
Alternative 3						
High	High	26%	23	201	2,031	10
Low	High	19%	241	225	2,903	13
High	Low	12%	10	30	525	17
Low	Low	7%	8	10	307	30
Outside Urban Villages		**17%**	**3**	**110**	**1,649**	**15**
Total in Study Area			**286**	**576**	**7,415**	**13**

* Notes: Assumed percentage of demolitions is based on historical ratio of TRAO eligible households with demolition as the reason for displacement compared to total demolitions, by area category of city. Displaced household estimates are based on low and high estimated of demolitions, by area category, exclusive of demolitions already permitted to occur. Ratio of affordable units to displaced households is based on the high estimate of displaced households.

Source: City of Seattle, 2017; BERK, 2017.
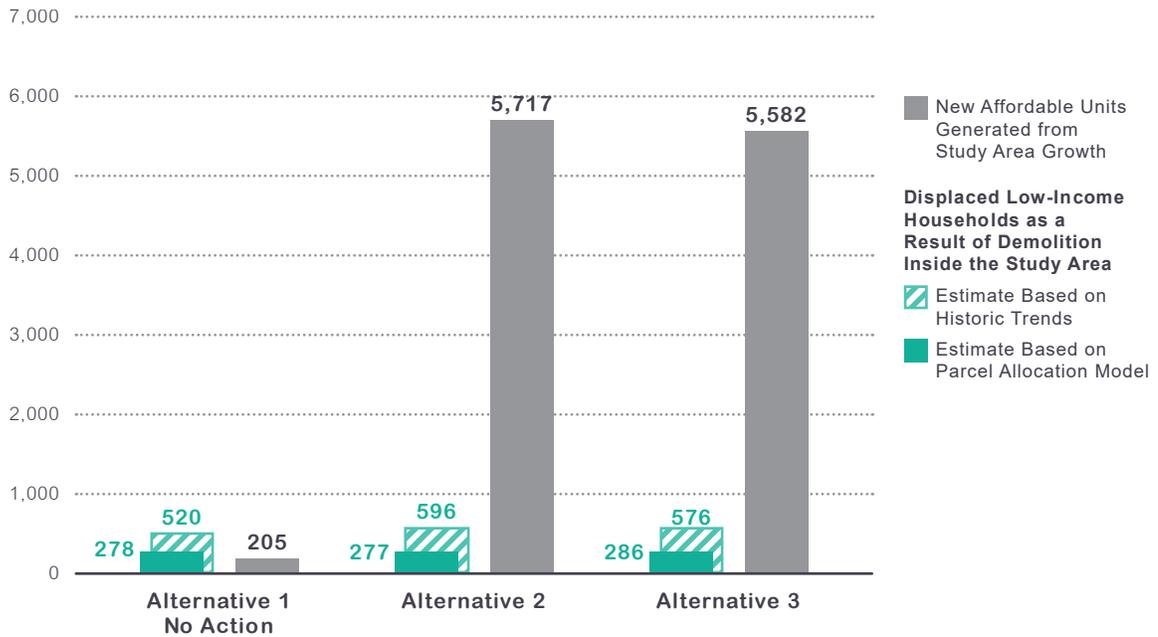
Exhibit 3.1–40 New MHA and IZ Affordable Units Generated Compared to Displaced Low-Income Households due to Demolition in the Study Area

Notes: All estimates are for the period 2017–2035. Displacement estimates exclude those related to units already permitted for demolition.
Source: City of Seattle, 2017; BERK, 2017.

Other Forms of Physical Displacement

As noted above, demolition is only one cause of physical displacement. For instance, property owners may terminate or discontinue the lease of renters in order to renovate an existing unit or change the use of the unit. The alternatives are not expected to have any difference in impacts to these kinds of displacement. However, these kinds of displacement are expected to continue in the future.

As shown previously in Exhibit 3.1–24, TRAO data provides some limited insight into the extent of these kinds of displacement. Additional analysis of TRAO records of displacement that occurred within the study area between 2013 through 2016 indicates than an average of 33 households with income 50 percent of AMI or below are displaced per year for these two reasons. But the number has been increasing over this short period of time. In 2016, 93 low-income households were displaced for these reasons. Nearly all were associated with renovation/rehabilitation permits.

Exhibit 3.1–41 shows the cumulative expected physical displacement of low-income households (income 50 percent of AMI or less) expected during the 20-year planning period, inclusive of displacement due to demolition, renovation, or change of use. The exhibit also includes
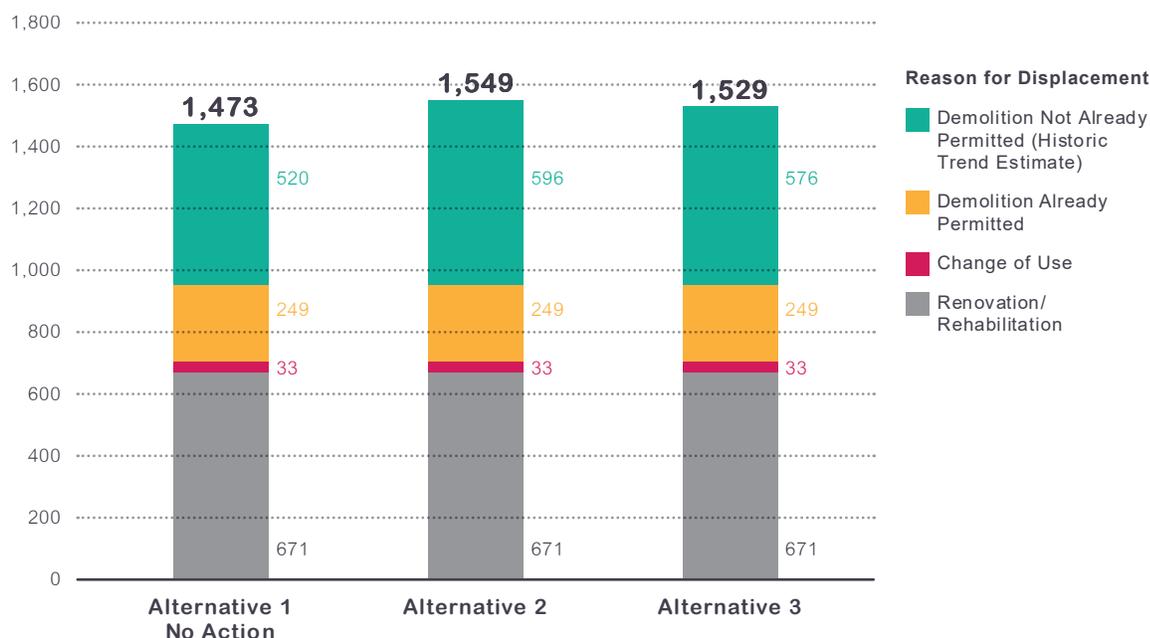
Exhibit 3.1–41   Cumulative Estimate of Household 50% of AMI or Less Displaced Due
to Demolition, Renovation, or Change of Use, 2015–2035

Source: City of Seattle, 2017; BERK, 2017.

displacement due to demolitions that are already permitted. The result
is a more conservative estimate of physical displacement of low-income
households. The total number of low-income households displaced for
these reasons is slightly higher under the action alternatives when using
the historical trend estimate of demolitions. However, the total amount is
still substantially less than the number of new affordable units expected
to be generated during the same time period.

Economic Displacement

The impacts of the three alternatives on economic displacement are
difficult to quantify. However, previous academic research as well as
analysis findings discussed in 3.1.1 Affected Environment are relevant to
an evaluation of potential impacts. The review of the academic research
literature in Appendix I suggests that the increased housing supply
provided in Alternatives 2 and 3 is likely to reduce upward pressure
on market-rate housing costs and reduce economic displacement in
the city and region overall when compared to Alternative 1 No Action.
This research finding is supported by the historical analysis of average
apartment rents in Seattle shown in Exhibit 3.1–17, which shows that
rents stabilize or decline during periods of high vacancy and increase

during periods of low vacancy. The findings in the academic research are also supported by the historical analysis of evidence of potential economic displacement shown in Exhibit 3.1–30, which finds that Seattle neighborhoods with more total housing production were somewhat more likely to see gains in low-income households. This same relationship is found among census tracts in all Displacement Risk and Access to Opportunity categories, and it is also found after accounting for change in households that receive federal housing assistance. However, not all tracts show outcomes conforming to this general pattern.

Prior research has also found that the provision of subsidized housing is associated with a decrease in displacement (Zuk and Chapple 2016). This finding suggests that Alternatives 2 and 3, which generate substantially more income-restricted affordable units, will reduce future economic displacement compared to Alternative 1 No Action.

Prior research reviewed in Appendix I also indicates that neighborhoods with greater variety of housing types are more likely to provide housing affordable to low-income households. The increased capacity for development in Lowrise and Residential Small Lot zones in Alternatives 2 and 3 has the potential to increase the diversity of housing types in neighborhoods throughout the study area, providing more housing options for more kinds of households. This too has potential to decrease economic displacement pressures.

Impacts at the neighborhood scale could vary from expected impacts for the city as a whole. New development can come with or precipitate amenities that increase demand for housing in a particular neighborhood, potentially increasing housing costs and increasing localized economic displacement. For this reason, there is potential that localized economic displacement pressures could vary by alternative.

Cultural Displacement

Evaluating the potential impacts of the alternatives on cultural displacement is difficult. However, cultural displacement is often precipitated by, and related to, physical and economic displacement. The findings outlined above are also relevant to understanding the potential impacts on cultural displacement.

New development may have direct impacts on existing cultural institutions and businesses through demolition of commercial buildings. But it can also increase the supply of commercial space. This additional supply would be expected to reduce competition for commercial space

and the associated upward pressure on rents. This could have the impact of reducing the potential for the economic displacement of existing cultural intuitions and businesses.

Commercial Displacement

While this chapter focuses on residential displacement, it is important to note that businesses, institutions, and cultural anchors are also susceptible to displacement due to market pressures. Commercial displacement is harder to quantify than residential displacement. Like a household, a business can be physically displaced due to demolition. But while we know the number of housing units on a given parcel, data about the number, type, or other characteristics of businesses across all redevelopment parcels citywide is not available. Small businesses are also vulnerable to economic displacement and may be pressured to relocate when rents increase. Yet this is hard to predict because, like households whose income may fluctuate, struggling businesses may also need to relocate even if rents haven't changed.

Physical and economic displacement of households can also precipitate commercial displacement. This is especially true in cultural communities and communities of color where culturally related businesses may struggle if their customer base can no longer afford to live in the neighborhood. Likewise, small business displacement can also further destabilize communities of marginalized populations.

While limited data availability and the complexity of these phenomena make them very difficult to quantify, residential displacement is a helpful for proxy for understanding where commercial displacement might be more likely.

Key Findings—Impacts Common to All Alternatives

Housing Supply

- All three alternatives have sufficient capacity to accommodate planned growth. Alternative 2 and Alternative 3 are better able to accommodate strong housing growth than Alternative 1 No Action because they increase total capacity for housing.
- Alternatives 2 and 3 provide greater housing capacity and supply lowrise, midrise and residential small lot housing. They also provide a greater share of total housing supply in these housing categories, which has potential to diversify the supply of new housing.

Housing Affordability

- Alternatives 2 and 3 would provide increased market-rate housing supply, which is likely to reduce upward pressure on market-rate housing costs compared to Alternative 1 No Action.

- For low-income households, the most significant positive impact on housing affordability will be the production of new income-restricted affordable units.

- While all alternatives result in some new rent- and income-restricted units in the study area, the action alternatives would generate about 28 times more rent- and income-restricted units than Alternative 1 No Action.

- Considering the distribution of total citywide MHA payments, including from development outside the study area, the action alternatives would result in about 135 to 138 percent more rent- and income-restricted units built in the study area compared to Alternative 1 No Action.

- MHA affordable units would provide benefits to low-income households in the form of savings of 27-48 percent from the current average market price for rental housing.

- Increased production of rent- and income-restricted units would disproportionally serve people of color because low-income households are more likely to be households of color and because subsidized housing programs have historically served high percentages of non-white households.

Displacement

- Alternatives 2 and 3 could result in more total demolished units than Alternative 1 No Action.

- Alternatives 2 and 3 would produce more new housing in the study area for every demolished unit—about 14 new units for every demolition compared to 10 under Alternative 1 No Action.

- In Alternatives 2 and 3, about 10 rent- and income-restricted units would be generated from growth in the study area for every low-income household (under 50 percent of AMI) physically displaced due to demolition. Alternative 1 No Action would generate far fewer affordable units than Alternatives 2 and 3—and fewer affordable units than low-income households physically displaced due to demolition.

- Based on assumptions about the distribution of affordable units funded using citywide MHA payments, including from development outside the study area, about 13 new affordable units would be built in

the study area in Alternatives 2 and 3, for every low-income household (under 50 percent of AMI) physically displaced due to demolition, compared to six under Alternative 1 No Action.

- Additional housing supply provided in Alternatives 2 and 3 would reduce economic displacement pressures compared to Alternative 1 No Action. However, impacts could vary by neighborhood.

IMPACTS OF ALTERNATIVE 1 NO ACTION

Housing Supply

Maintaining current zoning, maximum height limits, and maximum FAR limits in the study area would provide enough theoretical capacity for household growth in the study area to accommodate population projected in Seattle 2035. This alternative is expected to result in 45,361 net new housing units, about 37 percent less than the action alternatives.

Affordable Housing

Housing affordability challenges in Seattle are likely to persist, particularly for low- and moderate-income households. Alternative 1 No Action would not implement MHA in the study area and would result in substantially less affordable housing than the action alternatives. Alternative 1 is expected to add 3,155 new affordable units located throughout the study area as a result of MHA payments generated from development outside the study area and the existing IZ program. This is about 58 percent less new affordable housing than Alternative 2 and 57 percent less than Alternative 3.

Displacement

Physical displacement of between 278 and 520 low-income households could occur in the study area due to the demolition of existing housing units to provide for expected redevelopment. The lower estimate is slightly higher than expected under the action alternatives, while the high estimate is slightly lower than expected under the Action Alternatives. While all alternatives are expected to result in similar amount of displacement, Alternative 1 No Action would result in substantially fewer new affordable units and less market-rate housing supply per displaced household. Additionally, the smaller growth in housing supply compared to the action alternatives could result in greater upward pressure on housing costs and additional economic displacement under Alternative 1 No Action.

IMPACTS OF ALTERNATIVE 2

Housing Supply

Alternative 2 would increase capacity for new housing growth compared to Alternative 1 No Action. This alternative is expected to result in 63,070 net new housing units, 39 percent more than expected under Alternative 1 No Action and roughly the same as Alternative 3. It also provides the greatest capacity for low-rise and residential small lot housing, and therefore has the greatest potential to provide for additional family-sized housing supply.

As shown in Exhibit 3.1–42, the greatest share of new housing growth (21,925 units, or about 35 percent) is expected in areas with high displacement risk and high access to opportunity. Slightly less housing growth (19,839 units, about 32 percent) would be in areas with low displacement risk and high access to opportunity. Compared to Alternative 2, Alternative 3 would have about 14 percent more total housing units in high displacement risk and low access to opportunity areas like Rainier Beach, Othello, and Westwood–Highland Park. Conversely, Alternative 2 would have about 17 percent less total new housing in areas with low displacement risk and high access to opportunity like Green Lake, Wallingford, and Madison–Miller. Average housing prices in these areas tend to be among the city's highest, and therefore they are places where additional market-rate housing could moderate high competition for housing for moderate- and high-income households.

Exhibit 3.1–42 Estimated Total Net New Housing Units by Alternative

	Alternative 1 No Action	Alternative 2	Alternative 3
High Displacement Risk & High Access to Opportunity	13,800	21,925	17,899
Low Displacement Risk & High Access to Opportunity	15,028	19,839	23,880
High Displacement Risk & Low Access to Opportunity	3,700	5,143	4,520
Low Displacement Risk & Low Access to Opportunity	1,400	1,963	2,373
Outside Urban Villages	11,433	14,199	14,186
Total in Study Area	45,361	63,070	62,858

Source: City of Seattle, 2017.

Housing Affordability

Increasing housing supply has the potential to reduce upward pressure on housing costs and moderate continued increases in average market rents. However, housing affordability challenges are expected to persist, particularly for low- and moderate-income households.

Alternative 2 would implement MHA in the study area, linking new development to the production of new affordable units. This would contribute to the production of 7,513 new affordable units, about 4,358 more affordable units in Alternative 1 No Action, an increase of 138 percent. Total production of affordable units would be just slightly higher than Alternative 3, 98 additional units.

Similar to the differences in the distribution of total new housing supply, areas with high displacement risk and high access to opportunity, such as Columbia City, First Hill–Capitol Hill, and North Beacon Hill are assumed to receive the greatest share of new affordable housing in Alternative 2.[16] This would increase the number of low-income households able to find affordable housing in areas with high displacement risk areas that also provide good access to opportunity.

Conversely, compared to Alternative 3, Alternative 2 would yield fewer rent- and income-restricted MHA housing units in areas with low displacement risk and high opportunity areas like Green Lake,

Exhibit 3.1–43   Estimated Total MHA and IZ Affordable Housing Units by Displacement Risk and Access to Opportunity

	Alternative 1 No Action	Alternative 2	Alternative 3
High Displacement Risk & High Access to Opportunity	949	2,633	2,031
Low Displacement Risk & High Access to Opportunity	1,079	2,337	2,903
High Displacement Risk & Low Access to Opportunity	250	620	525
Low Displacement Risk & Low Access to Opportunity	94	246	307
Outside Urban Villages	783	1,677	1,649

Source: City of Seattle, 2017.

16 As noted in Chapter 2, the distribution of affordable units from MHA payment are more difficult to predict. The alternatives assume that MHA payment units will be distributed according to each urban village's share of total citywide residential growth.

Wallingford, Madison–Miller, and Ballard. This would result in fewer affordable housing opportunities in neighborhoods where housing costs are among the city's highest and access to opportunity is high.

Displacement

Alternative 2 is expected to result in the physical displacement of between 277 and 596 low-income households due to demolition of housing units that is not already permitted. The higher estimate is about 15 percent greater than expected under Alternative 1, but the lower estimate is slightly lower than expected under Alternative 1 No Action. Alternative 2 would result in a similar total number of low-income households experiencing physical displacement compared to Alternative 3. The pattern of displacement would vary between these alternatives, with Alternative 2 expected to result in more displacement in areas with high displacement risk.

Compared to Alternative 1 No Action, the additional housing supply in Alternative 2 is expected to reduce upward pressure on market-rate housing costs. Alternative 2 would also generate significantly more income-restricted affordable housing than Alternative 1 No Action. As a result, Alternative 2 is expected to reduce economic displacement compared to Alternative 1 No Action.

To summarize, throughout the city as a whole, there is little difference between Alternative 2 and Alternative 3 in the amount of expected physical displacement of low-income households. Alternative 2 focuses more growth in urban villages with high displacement risk and high access to opportunity. The additional housing supply has the potential to reduce economic displacement pressures in those same neighborhoods. However, new growth also has the potential to attract new amenities that could increase housing demand and potentially increase economic displacement in some neighborhoods, even while reducing economic displacement pressures in the city as a whole.

IMPACTS OF ALTERNATIVE 3

Housing Supply

Alternative 3 would increase capacity for new housing growth compared to Alternative 1 No Action. Alternative 3 is expected to result in 62,858 net new housing units, 39 percent more than expected in Alternative 1 No Action and roughly the same as Alternative 2. The greatest share of new housing growth (about 38 percent) would occur in areas with low displacement risk and high access to opportunity like Green Lake, Wallingford, Madison–Miller, and Ballard. As noted above, Alternative 3 would yield more total housing than Alternative 2 in these areas. Given the strong housing demand in these neighborhoods, additional housing could result in more housing opportunities and less upward pressure on housing costs in these areas.

In Alternative 3, about 29 percent of housing growth would occur in areas with high displacement risk and high access to opportunity, such as First Hill–Capitol Hill, North Beacon Hill, and Northgate. This is more than 4,000 fewer total housing units in these areas compared to Alternative 2. Additional housing supply in these neighborhoods could have positive effects because it could reduce competition for market-rate housing, particularly among households in the middle- and upper-income groups. Alternative 3 provides less new housing supply in these areas that could moderate upward pressure on housing costs than expected under Alternative 2. This expected outcome is a result of an intentional guiding of additional growth capacity to urban villages with low displacement risk.

Compared to Alternative 2, Alternative 3 would yield more than 600 fewer total housing units in urban villages with high displacement risk and low access to opportunity, such as Rainier Beach, Othello, and South Park.

Housing Affordability

Increasing housing supply has the potential to help reduce upward pressure on housing costs and moderate increases in average market rents. However, housing affordability challenges are expected to persist, particularly for low and moderate income households.

Alternative 3 would implement MHA in the study area, linking all new development in the study area to the production of new affordable units. This is expected to contribute to the production of 7,415 new affordable units, or 4,260 more affordable units than expected in Alternative 1 No

Action, an increase of 135 percent. Total production of affordable units in Alternative 3 would be 98 units fewer than Alternative 2.

In Alternative 3, areas with low displacement risk and high access to opportunity, such as Madison–Miller, Wallingford, and Ballard, are assumed to receive the greatest share of new affordable housing, based on assumed distribution based on an urban village's share of citywide residential growth.[17] More rent- and income-restricted housing in these locations would have a positive housing impact because more low-income households could live in areas with high average housing costs and good access to opportunity.

Alternative 3 is estimated to produce fewer new income-restricted affordable units in areas with high displacement risk and high access to opportunity, such as Columbia City, North Beacon Hill, and Northgate, compared to Alternative 2. Income-restricted affordable housing in these locations would have a positive housing impact because it makes housing available to low-income households in areas with high access to opportunity but where housing costs are increasing. Many of these neighborhoods also have historically high percentages of people of color. It may be concluded, therefore, that Alternative 3 provides weaker affordable housing benefits to low-income households in high displacement risk and high access to opportunity areas than Alternative 2.

Displacement

Alternative 3 is expected to result in the physical displacement of between 286 and 576 low income households due to demolition of housing units that is not already permitted. The higher estimate is about 11 percent greater than expected under Alternative 1, but the lower estimate is slightly lower than expected under Alternative 1. As noted above, Alternative 3 is expected to result in a similar total number of physically displaced low income households as is expected in Alternative 2. By focusing less growth in areas with high displacement risk and high access to opportunity, Alternative 3 is expected to result in less physical displacement of low-income households in these areas. As noted above, this is a an expected outcome of intentional guiding of additional growth capacity, and therefore expected housing growth, to urban villages with low displacement risk.

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17 As noted in Chapter 2, the distribution of affordable units from MHA payment are more difficult to predict. The alternatives assume that MHA payment units will be distributed according to each urban village's share of total citywide residential growth.

The greater housing supply compared to Alternative 1 is expected to reduce upward pressure on market-rate housing costs and therefore also reduce pressures that cause economic displacement. Likewise, the greater supply of new affordable units is also expected to reduce the economic displacement of low-income households compared to Alternative 1.

To summarize, throughout the city as a whole there is little difference between Alternative 3 and Alternative 2 in the amount of expected physical displacement of low-income households. Alternative 3 focuses less growth in urban villages with high displacement risk and high access to opportunity. Compared to Alternative 2, the smaller supply of both market-rate housing and new affordable housing in these neighborhoods has the potential to increase economic displacement pressures in those neighborhoods.

3.1.3 MITIGATION MEASURES

Under all alternatives, including Alternative 1 No Action, housing affordability and displacement would continue to be significant concerns.

INCORPORATED PLAN FEATURES

MHA requires the production of new affordable housing for households with incomes at or below 60 percent of AMI, mitigating to some extent the impacts of commercial and market-rate residential development in creating a need for affordable housing. By implementing MHA in the study area while increasing development capacity, the action alternatives both provide increased housing supply generally and additional affordable housing, neither of which would occur under Alternative 1 No Action. The differences in affordable housing production are detailed in 3.1.2 Impacts.

ADDITIONAL STRATEGIES FOR PROVIDING AFFORDABLE HOUSING BEYOND THE PROPOSAL

Affirmatively Further Fair Housing

OH makes investment decisions for the use of housing funds, including potential MHA funds, based on several criteria. One of the criteria is affirmatively furthering fair housing. This strategy specifically address the needs of communities of color and other disadvantaged populations. In addition to increasing housing choice by strategically locating new affordable housing, Office of Housing will also work with private owners to ensure that affordable units are affirmatively marketed to those with higher barriers to accessing housing.

Affordable Housing Funding Programs

Apart from MHA, several additional sources fund preservation and creation of affordable housing in Seattle. The Federal low-income housing tax credit (LIHTC) program is the primary source of funding for low-income housing development in Washington State. Locally, the City uses voter-approved Housing Levy funds and contributions from developers through the existing Incentive Zoning program. The City has funded more than 13,000 units since 1981 through its Rental Production and Preservation Program. In August 2016, Seattle voters approved a

new Housing Levy that will raise $290 million over seven years. Other programs funded by the current Seattle Housing Levy include:

- Acquisition and Preservation Program: Short-term funding to permit strategic acquisition of property for low-income housing preservation and development

- Operating and Maintenance Program: annual operating and maintenance subsidies for buildings housing extremely low income and formerly homeless residents

- Homeownership Program: low-interest deferred loans to first-time homebuyers and development subsidies for long-term resale restricted ownership housing

- Homelessness Prevention and Housing Stability Program: combination of housing stabilization support services and financial assistance to serve those who are homeless or at risk of homelessness

Regional Equitable Development Initiative (REDI) Fund

In response to the significant investments being made in transit, the public-private Regional Equitable Development Initiative (REDI) Fund was created to help finance the acquisition of property along transit corridors to preserve the affordability of future housing and community facilities. The City participates in the REDI Fund, which uses public funds to leverage private investment, making a total of $21 million available across the region.

Multifamily Tax Exemption Program (MFTE)

In October 2015, the Seattle City Council passed Ordinance 118505 renewing and expanding the Multifamily Tax Exemption (MFTE) program. MFTE incentivizes builders to rent- and income-restrict 20 percent of housing units in new multifamily structures. In exchange for on-site affordability, the City provides a partial property tax exemption for up to 12 years. This program is available in all multifamily areas throughout the city.

At least 20 percent of units in buildings containing the minimum number of dwelling units with two or more bedrooms, and 25 percent of units in buildings not containing the minimum number of two-bedroom units, must be affordable and rented to households up to following income levels:

- 40 percent of AMI for congregate residences or small efficiency dwelling units

- 65 percent of AMI for studio units
- 75 percent of AMI for one-bedroom units
- 85 percent of AMI to two-bedroom units
- 90 percent of AMI for three-bedroom and larger units

All three alternatives in this proposal are expected to see growth in the number of affordable units incentivized through the MFTE program. Between 2011 and 2015, approximately 17 percent of all new units in multifamily buildings built in Seattle between 2011 and 2015 were rent-restricted through this program. It is expected that this program will continue to produce units in all three alternatives.

Incentive Zoning

The City has a voluntary Incentive Zoning program that allows participating developers to achieve floor area beyond base density or height in their projects in selected zones and neighborhoods by either providing a modest number of affordable units onsite or by contributing to the City's housing development capital fund. Once MHA is implemented, incentive zoning affordable housing requirements will automatically be satisfied through compliance with MHA, where applicable. Non-housing Incentive Zoning benefits such as open space, childcare, and transfer of development rights remain unchanged with MHA.

The development capacity increases in the action alternatives evaluated above could be implemented with Incentive Zoning if implementation of MHA did not occur. Affordable housing constructed would be considerably less than the under the action alternatives.

Property Tax Exemption with Goal of Preserving Apartment Buildings

The City, along with several other cities, nonprofit housing providers, unions, and advocates, supported a state legislative bill (SB 6239) that would have enacted a local-option property tax exemption for existing rental homes. The bill was reintroduced and retained in present status and will presumably be picked up again in the future.

The Preservation Tax Exemption would create a local option in Washington for a 15-year tax exemption for property owners in the private

market who agree to set aside 25 percent of units in their buildings for low-income tenants (earning less than 50–60 percent of AMI) to:

- Maintain affordability for lower-income community members
- Improve housing health and quality for very low-income residents
- Prevent displacement of long-time community members in areas that are gentrifying near transit investments, high quality schools, and jobs

Local Voluntary Employers Fund

There is precedent in other high-cost areas, like Silicon Valley, for cities to partner with employers on affordable housing. The Mayor's Action Plan to address the affordability crisis, *Housing Seattle: A Roadmap to an Affordable and Livable City*, recommends that the City partner with local employers to contribute to a City fund that builds and preserves affordable housing (Murray 2015).

Real Estate Excise Tax for Affordable Housing

Pursue state legislation to authorize a local option Real Estate Excise Tax (REET) to allow municipalities to re-capture a portion of increased land value upon the transfer of property and reinvest it in critical affordable housing infrastructure. The State legislation could allow for a 0.25 percent REET, that could be specifically dedicated to affordable housing, and could be implemented locally via council action.

ADDITIONAL ANTI-DISPLACEMENT MEASURES

Strengthened Tenant Protections

In August 2016, the City Council passed Ordinance 118755 banning discrimination against prospective tenants who use alternative forms of income to pay rent, such as social security, disability, child support, or unemployment. This expanded existing protections for tenants paying for housing with federal Section 8 vouchers.

Tenant Relocation Assistance

The Tenant Relocation Assistance Ordinance is designed to help partially mitigate the impacts of physical displacement by requiring developers to

pay relocation assistance to tenants with incomes at or below 50 percent of AMI who must move because their rental will:

- Be torn down or undergo substantial renovation
- Have its use changed (for example, from apartment to a commercial use or a nursing home)
- Have certain use restrictions removed (for example a property is no longer required to rent only to low-income tenants under a federal program)

Strengthen Tenant Relocation Assistance Ordinance

Due to high housing costs, displaced lower-income tenants have difficulty finding replacement housing in Seattle. The TRAO program currently provides a payment of $3,255 to renter households earning 50 percent of AMI or less to help them secure new housing. The City could increase the effectiveness of the TRAO program by:

- Providing assistance to tenants with language barriers or those suffering from mental illness or cognitive disabilities.
- Revising the definition of "tenant household." Under the existing definition, all low-income tenants on a lease are treated as members of one household and granted only one quota of relocation assistance, even if they are roommates who do not intend to seek housing together again.
- Seek authorization in State law to increase the eligibility level for TRAO payments from 50 percent of AMI to 80 percent of AMI.

Seattle Equitable Development Initiative

In 2016, the Office of Planning and Community Development created the Equitable Development Initiative (EDI), a set of strategies that emerged from the Growth and Equity Report, part of the Seattle 2035 Comprehensive Plan update. The EDI involves many different City departments coordinating to address equity in our underserved communities and displacement as Seattle grows. Various EDI strategies are intended to:

- Advance economic mobility and opportunity
- Prevent residential, commercial, and cultural displacement
- Build on local cultural assets
- Promote transportation mobility and connectivity
- Develop healthy and safe neighborhoods

3.1.4 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

Implementing MHA cannot meet the entire need for affordable housing. Seattle will continue to face housing affordability challenges. The Seattle 2035 Comprehensive Plan Final EIS found a significant unavoidable adverse impact in the area of housing, stating that Seattle would continue to face a housing affordability challenge under all alternatives studied. The HALA Advisory Committee set a goal of adding or preserving 50,000 housing units by 2025, including 20,000 rent or income-restricted housing units. Implementing MHA in the study area would contribute significantly to meeting this citywide goal by resulting in the generation of more than 5,500 rent- and income-restricted housing units from development in the study area over 20 years. Implementing MHA in the study area would be a step towards mitigating the housing affordability challenge identified in the Seattle 2035 Comprehensive Plan, but it would not fully alleviate the need for affordable housing. Some demolition of housing and displacement of existing residents will occur with or without MHA. Housing costs will continue to be a burden for a segment of the Seattle's population due to high demand and competition for housing generated by a strong job market and attractive natural and cultural amenities. Therefore, even with implementation of MHA in the study area, Seattle will continue to face a significant challenge in the area of housing affordability. This condition is a result of market and economic forces, however, and not an impact of MHA.

MHA has been constructed so that the additional capacity provided through zoning changes can support the additional costs borne by developers for affordable housing. While the City's research and economic studies indicate that program costs are reasonable, developers may experience some financial impact. Whether such costs are absorbed by developers or passed along to users will depend on complex circumstances that vary with individual circumstances and cannot be estimated. These types of financial economic impacts are not elements of environmental review under SEPA.

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3.2

LAND USE.

This section focuses on land use patterns and the implications for land use compatibility that may occur if the City adopts the zoning changes described under each alternative.

3.2.1 AFFECTED ENVIRONMENT

This section addresses land use patterns and development compatibility citywide and in Seattle's urban villages. This review provides a baseline for analyzing the impacts of the alternatives for implementing MHA. Although this affected environment discussion covers the whole city, the impacts and mitigation analyses apply only to the study area. Exhibit 2–1 in Chapter 2 is a map of the study area.

The Seattle 2035 Comprehensive Plan EIS described land use conditions in Seattle. This chapter relies primarily on the background information contained in that document. While some changes to existing land use have likely occurred since publication of that EIS, overall land use patterns in Seattle have not changed significantly. The following sections describe future land use as envisioned in the Seattle 2035 Comprehensive Plan and generalized current land use patterns; for a detailed quantitative description of land uses in Seattle, please refer to the Comprehensive Plan EIS.

FUTURE LAND USE AND ZONING

Seattle 2035 Comprehensive Plan Update

In 2016, the City completed a major update to its Comprehensive Plan, adopting a new 20-year plan to guide growth through the year 2035. Seattle 2035 renewed the City's commitment to the urban village strategy, originally established in 1994 as part of the City's first Comprehensive Plan under the state

Growth Management Act. Several goals and policies from the recently adopted Seattle 2035 Plan assist evaluation of the proposed action to implement MHA:

- Land Use Goal 1 from the Seattle 2035 Plan is to "Achieve a development pattern consistent with the urban village strategy, concentrating most new housing and employment in urban centers and villages, while also allowing some infill development compatible with the established context in areas outside centers and villages." (LU G1)

- Urban Center, Hub Urban Village, and Residential Urban Village were established as Future Land Use designations on the Future Land Use Map (FLUM) (Exhibit 3.2–1). Prior to this, the FLUM indicated other use-specific designations (e.g., Single Family, Multifamily) in urban centers and urban villages.

- Seattle 2035 renewed the policy commitment for urban centers and urban villages to flourish as compact mixed-use neighborhoods designed to accommodate most of Seattle's new jobs and housing. (GS 1.2)

- Land use policies for Urban Center and Urban Village designations were updated to promote a variety of housing types and affordable rent levels. (GS 1.13, LU G2)

- Seattle 2035 considered expansions of certain urban villages with very good transit service. The Plan includes new land use policies that support aligning urban village boundaries generally with a 10-minute walk of light rail and other very good transit. (GS 1.12)

As shown in Exhibit 3.2–1, the Comprehensive Plan's Future Land Use Map (FLUM) identifies land use designations intended to guide growth and development across the city. The proposed Action Alternatives would modify the Future Land Use map to include more land in certain Hub and Residential Urban Villages within a 10-minute walk of light rail or very good transit service. (See Chapter 2). An overview of the intent for each FLUM designation is below.

Bitter Lake
Village

Lake
City

Aurora
Licton Springs

Northgate

Crown
Hill

Greenwood
Phinney Ridge

Green
Lake

Roosevelt

Ballard

Wallingford

Ravenna

Fremont

University
Community

Eastlake

Upper
Queen Anne

Uptown

S. Lake
Union

Madison
Miller

First Hill -
Capitol Hill

Downtown

23rd & Union
Jackson

Admiral

N. Beacon
Hill

North
Rainier

West Seattle
Junction

Columbia
City

Morgan
Junction

Othello

Westwood
Highland Park

South
Park

Rainier
Beach

Exhibit 3.2–1
Comprehensive Plan Future
Land Use Map (FLUM)

Urban Centers/Villages

- In MHA Study Area
- Outside MHA Study Area

Future Land Use 2035

- Urban Center
- Hub Urban Village
- Residential Urban Village
- Manufacturing Industrial Center
- Single Family Residential Areas
- Multi-Family Residential Areas
- Commercial/ Mixed Use Areas
- Industrial Areas
- Major Institutions
- Cemetery
- City-Owned Open Space

Source: City of Seattle, 2017; BERK, 2017.

Urban Centers and Villages

Urban Centers

Urban Centers

These densest neighborhoods in the city are both regional centers and neighborhoods that provide a diverse mix of uses, housing, and employment opportunities.

The Seattle 2035 FLUM has a single designation for all land in the six urban centers, indicating a wide variety of land uses are appropriate in urban centers. Urban centers are designated regionally by the King County Countywide Planning Policies and locally by the Seattle Comprehensive Plan. First Hill–Capitol Hill, Northgate, and the Ravenna portion of the University Community[1] are the only parts of the study area in urban centers.

Comprehensive Plan policies (GS 2.1) call for a variety of uses and the highest densities of both housing and employment in Seattle's urban centers, consistent with their role in the regional growth strategy. The Comprehensive Plan states that in urban centers zoning should allow for a diverse mix of commercial and residential activities. (Growth Strategy Figure 2).

Urban Villages

Hub Urban Villages

Hub Urban Villages

Communities that provide a balance of housing and employment, generally at lower densities than urban centers. These areas provide a locus of goods, services, and employment to communities that are not close to urban centers.

The FLUM also has a single designation for all land in hub urban villages, indicating the wide variety of land uses appropriate in hub urban villages. Seattle's six hub urban villages are in the study area. The Comprehensive Plan states that in hub urban villages zoning should allow a range of uses, including a variety of housing types and commercial and retail services that serve a local, citywide, or regional market, generally at a lower scale than in urban centers. In hub urban villages, the Comprehensive Plan's growth accommodation criteria call for zoning that allows at least 15 dwelling units per gross acre.

Residential Urban Villages

Residential Urban Villages

Provide a locus of goods & services for residents & surrounding communities but may not provide a concentration of employment.

Like urban centers and hub urban villages, the FLUM has a single designation for all land in residential urban villages. All 18 of the Seattle's residential urban villages are in the study area. The Comprehensive Plan Zoning and Use guideline for residential urban villages calls for zoning that emphasizes residential uses while allowing for commercial and retail services for the urban village and surrounding area, generally at

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1 *The University Community Urban Center is often colloquially called the University District but in fact comprises the U District business area, the University of Washington campus, and residential and commercial areas north and east of the campus.*

a lower scale than in hub urban villages. According to the Plan's growth accommodation criteria, zoning in residential urban villages should allow at least 12 dwelling units per gross acre.

Other Future Land Use Designations

The FLUM includes several other designations to indicate the planned pattern of future land use for areas outside urban centers and urban villages. Manufacturing and Industrial Centers are not included in the study area, and Parks and Open Space are addressed in Section 3.7 Open Space and Recreation of this EIS. The action proposes no changes to areas designated for Major Institution or Industrial land use. Minor changes to land with the following designations are a part of the proposed Action Alternatives in instances where urban villages are expanded.

Single Family Residential

The most extensive single FLUM designation is Single Family Residential, accounting for more than half of Seattle's total land area. The goal for single family areas (LU G7) is to provide opportunities for detached single-family and other compatible housing options that have low height, bulk, and scale in order to serve a broad array of households and incomes and to maintain an intensity of development appropriate for areas with limited access to services, infrastructure constraints, or fragile environmental conditions or that are otherwise not conducive to more intensive development. The only areas with this designation in the study area are those currently, or proposed as part of the action to be within urban villages.

Multifamily Residential

The land use goal (LU G8) for Multifamily Residential areas is to allow a variety of housing types and densities that is suitable for a broad array of households and income levels, and that promotes walking and transit use near employment concentrations, residential services, and amenities. The study area includes land with this designation where multifamily zoning exists outside urban villages.

Commercial / Mixed-Use

The land use goal (LU G9) for the Commercial / Mixed-Use designation is to create and maintain successful commercial/mixed-use areas that provide a focus for the surrounding neighborhood and that encourage new businesses, provide stability and expansion opportunities for

existing businesses, and promote neighborhood vitality, while also accommodating residential development in livable environments. The study area includes land with this designation where Commercial or Neighborhood Commercial zoning exists outside urban villages.

CURRENT LAND USE

City of Seattle

Seattle is about 83 square miles (53,182 acres) in area. The largest land use category, Single Family Residential, comprises about half of current land use in the city. Major institutions and public facilities and utilities account for about one tenth of Seattle's land use. Vacant land, parks and open space, commercial/mixed-use, and multifamily land uses each comprise another tenth of the city's land area (see Exhibit 3.2–2).

The highest concentrations of commercial and mixed-use development are found in Seattle's six designated urban centers, and particularly the four urban centers that constitute the "center city" (Downtown, First Hill-Capitol Hill, South Lake Union, and Uptown). Other urban villages and smaller nodes of development around the city also contain varying levels of commercial and mixed-use development.

Single-family residential neighborhoods fill the intervening areas, along with parks, open space, and major institutional uses. Industrial development predominates in the Greater Duwamish Manufacturing/Industrial Center (MIC) in south central Seattle and the Ballard-Interbay-Northend MIC, located northwest of Downtown. Exhibit 3.2–2 shows existing land use distribution across the city.

Urban Centers and Urban Villages

As discussed in Future Land Use above, the Growth Strategy Element of the Seattle 2035 Comprehensive Plan establishes an approach for accommodating Seattle's future growth by guiding new development to designated urban villages to, in part, maximize efficient use of infrastructure and services. The City distinguishes urban centers, hub urban villages, and residential urban villages, with varying functions and intended purposes. The following summary of existing land uses and zoning designations in urban villages provides a baseline for the analysis.

Bitter Lake
Village

Lake
City

Aurora
Licton Springs

Northgate

Crown
Hill

Green
Lake

Greenwood
Phinney Ridge

Roosevelt

Ballard

Wallingford

Ravenna

Fremont

University
Community

Eastlake

Upper
Queen Anne

Madison
Miller

Uptown

S. Lake
Union

First Hill-
Capitol Hill

Downtown

23rd & Union
Jackson

Admiral

N. Beacon
Hill

North
Rainier

West Seattle
Junction

Columbia
City

Morgan
Junction

Othello

Westwood
Highland Park

South
Park

Rainier
Beach

Exhibit 3.2–2
Existing Land Use Categories

Urban Centers/Villages

In MHA Study Area

Outside MHA Study Area

Existing Land Use

Commercial/Mixed Use

Industrial

Single Family

Major Institution and
Public Facilities/Utilities

Multi-Family

Parks/Open
Space/Cemeteries

Reservoirs/
Water Bodies

Vacant

Unknown

*Source: City of Seattle, 2017;
BERK, 2017.*

Urban Centers

Seattle's six designated **urban centers** are characterized by their focus on employment. Commercial and mixed-use development (which integrates residential and commercial uses) account for almost half of current land use in urban centers. In urban centers, single-use residential development is primarily multifamily, and single-family residential accounts for very little land. In general, almost half of an urban center's land is commercial/mixed-use, one-fifth single-use multifamily residential, one-fifth major institution or public facility, and a small amount industrial. But each of Seattle's urban centers has its own unique character and mix of uses. For example, both Downtown and First Hill-Capitol Hill share the density, development intensity, and mixed-use character that typify urban centers, but Downtown is more heavily commercial. By contrast, the University District contains a mix of commercial, residential, and industrial uses but is distinguished by the University of Washington campus and contains more public facility and institutional uses than other urban centers.

Overall, about 60 percent of zoning in urban centers allows commercial/mixed-use development and one-quarter allows multifamily residential. On average, open space, industrial, and single-family residential land use designations each comprise two percent or less of the land area in urban centers.

Urban Villages

Seattle's six **hub urban villages** account for about 1,232 acres of land in Seattle (3.2 percent). On average, about one-third of land use in hub urban villages is commercial/mixed-use (commercial integrated with residential uses), one-quarter single-use multifamily residential, about one-sixth single-family residential, and about one-quarter is a mix of other use categories (industrial, institutional, vacant land, open space). The specific land use mix varies in each hub urban village. Commercial/mixed-use land varies from more than 20 percent of land use in North Rainier to about 47 percent in Bitter Lake. Multifamily residential ranges from more than ten percent of land in North Rainier to around 40 percent of land in Ballard. Single-family residential use ranges from just 5 percent of land use in Bitter Lake and Lake City, to over one-quarter of land in North Rainier and West Seattle Junction.

In the six hub urban villages, the zoning composition averages half commercial/mixed-use zones and one-third multifamily residential zones. But there is considerable variation. For example, commercial/mixed-use zoning ranges from one-third of land area in Ballard to more than

two-thirds of land area in Bitter Lake. Conversely, multifamily zoning ranges from less one fifth of land area in Bitter Lake to more than half in Ballard. Ballard and Fremont contain no single-family residential zoning, while single family zoning occupies one-quarter of land area in the West Seattle Junction.

Seattle's 18 **residential urban villages** account for 2,631 acres of land (6.8 percent) in Seattle. Compared to hub urban villages, residential urban villages tend to have more land in single-family and multifamily residential use. Residential urban villages also exhibit a range of variation among their land use patterns. Commercial/mixed-use accounts for less than 10 percent of land use in South Park but accounts for more than 60 percent of land use in Greenwood-Phinney Ridge. Single family residential makes up more than 60 percent of land use in South Park but less than five percent of land use in Upper Queen Anne.

Zoning in residential urban villages tends to balance commercial/mixed use, multifamily residential, and single family residential development. Like hub urban villages, the particular zoning mix varies in residential urban villages. Commercial/mixed-use zoning ranges from about 10 percent of land area in South Park to 90 percent in Greenwood-Phinney Ridge. Multifamily residential zoning ranges from about 10 percent in South Park to more than 60 percent in Green Lake. Single-family residential zoning ranges from one percent in Greenwood-Phinney Ridge to more than 60 percent in Crown Hill.

RELEVANT POLICIES AND CODES

Comprehensive Plan Policies

The Land Use Element of the Seattle 2035 Comprehensive Plan sets goals and policies to implement the urban village strategy. Specifically, it includes policies governing changes in zoning for residential areas and infill development.

- **Policy LU 1.3** Provide for a wide range in the scale and density permitted for multifamily residential, commercial, and mixed-use projects to generally achieve the following overall density and scale characteristics, consistent, at a minimum, with the guidelines in Growth Strategy Figure 1:

  » In urban centers, a moderate to high-density and scale of development

  » In hub urban villages, a moderate density and scale of development

> » In residential urban villages, a low to moderate density and scale of development

> » Consider higher densities and scales of development in areas near light rail stations

- **Policy LU 1.4** Provide a gradual transition in building height and scale inside urban centers and urban villages where they border lower-scale residential areas.

- **Policy LU 2.7** Review future legislative rezones to determine if they pose a risk of increasing the displacement of residents, especially marginalized populations, and the businesses and institutions that serve them.

- **Policy LU 7.3** Consider allowing redevelopment or infill development of single-family areas inside urban centers and villages, where new development would maintain the low height and bulk that characterize the single-family area, while allowing a wider range of housing types such as detached accessory units, cottage developments or small duplexes or triplexes.

- **Policy LU 8.4** Establish evaluation criteria for rezoning land to multifamily designations that support the urban village strategy, create desirable multifamily residential neighborhoods, maintain compatible scale, respect views, enhance the streetscape and pedestrian environment, and achieve an efficient use of the land without major impact on the natural environment.

- **Policy LU 8.13** Use highrise multifamily zoning designations only in urban centers, where the mix of activities offers convenient access to regional transit and to a full range of residential services and amenities, as well as to jobs.

Land Use Code Provisions

MHA implementation would involve zoning map amendments in the study area and zoning code amendments to development regulations. The proposal includes rezoning of some areas currently zoned for single-family residential use. As a part of the action to implement single family rezones in urban villages, the proposal includes targeted amendments to the Land Use Code rezone criteria for single-family parcels (Section 23.34.010 of the SMC). Appendix F contains a summary of these proposed text amendments.

3.2.2 IMPACTS

The following land use impact analysis evaluates each of the alternatives with respect to land use patterns, compatibility, and compliance with adopted land use plans, policies, and regulations.

IMPACTS COMMON TO ALL ALTERNATIVES

Under all alternatives, Seattle would likely experience housing and employment growth over the long term, consistent with the estimates identified in Chapter 2. Increases in households and jobs may result from expected growth as anticipated in the Comprehensive Plan and/or additional incremental growth from zoning changes to implement MHA. As described in Chapter 2, each alternative would distribute future residential and commercial development capacity to different areas of the city according to existing or proposed land use regulations. Under all alternatives, most future growth would occur in urban centers and urban villages. Because Alternative 1 No Action would not implement MHA or modify existing land use regulations, the following discussion pertains only to Alternatives 2 and 3 and describes the impacts of these two alternatives relative to what would be allowed under existing zoning and development regulations.

Overall, at the citywide scale, land use impacts may be summarized as follows:

- Changes to land use patterns would be consistent with the overall Comprehensive Plan strategy.

- Denser and more intensive housing and commercial development would occur primarily in existing and expanded urban villages.

- Changes would result in gradual shifts from single-family to multifamily or mixed residential-commercial uses, primarily in urban villages and urban village expansion areas.

- Changes would result in gradual intensification of density, use, and scale in all rezoned areas over time.

- Most land use changes would be minor or moderate in level of impact, with significant impacts in particular locations.

- Significant land use impacts would usually occur near frequent transit stations, at transitions between existing commercial areas and existing single-family zones, and in areas changing from existing single-family zoning in urban villages and urban village expansion areas.

- Denser and more intensive growth would occur in existing multifamily and commercial zones outside urban villages. In some locations,

depending on the alternative, these changes would have fewer land use impacts since increases in maximum height limits would be small, resulting in only minor impacts. In other areas, the changes could be moderate or significant, depending on the location and specific change in zoning proposed by the alternative.

- More affordable housing units would be built.

- A greater variety of housing types would occur in the city's residential areas, as residential small lot zoning is applied to some current single-family areas and the amount of land zoned multifamily increases, while the high percentage of land zoned single family would decrease incrementally.

- In general, the potential for land use impacts and the severity of land use impacts would tend to increase as the MHA tier increases, but there is variation in the impacts depending on the specific zoning change and location. (See Chapter 2 and Section 3.3 Aesthetics for description of MHA tiers.)

The alternatives primarily differ in the distribution of zone changes and the resulting incremental intensification of new development that could lead to land use impacts. To establish a framework to further distinguish potential land use impacts, we can consider three types of land use impact:

- **Intensification of use:** Land use impacts may occur when zoning changes would allow different activities and functions to take place. For example, this could occur in an area with residential zoning that is rezoned to allow commercial activities such as retail or offices. Changing the uses allowed in an area can have a land use impact since certain new activities can conflict with established functions. Impacts related to intensification of use can include noise, increased pedestrian and vehicle traffic, parking constraints, longer hours of activity, industrial and other urban noises, air quality, and increased light from buildings. This analysis considers the following broad land use categories that pertain to the study area: Single Family, Multifamily, and Commercial/Mixed-Use. Alternatives 2 and 3 change the distribution of land use among these categories, which may create an impact in certain circumstances.

- **Density increase:** Land use impacts may occur from an increase in the allowed density of activity allowed on a site. This analysis focuses on residential density, since the primary purpose of the proposal is to provide more affordable housing. Rezoning to commercial or mixed-use zones could result in greater commercial density in some locations. Residential density increases occur when density limits in the Land Use Code are changed or removed such that a property

of a given size could have more housing units. In the proposal, land use code density limit reduction or removal pertains primarily to areas with Single Family Residential and Lowrise multifamily zoning, since Midrise, Highrise, and Commercial zones do not have codified density limits. However, in addition to removal or reduction of land use code density limits, increased density can also result from increases to allowed building height or floor area, since the same site would be allowed to contain more housing or commercial space. Impacts related to density increases can include noise, increased pedestrian and vehicle traffic, and parking constraints.

- **Scale change:** Land use impacts may occur from increasing the scale of buildings that can be built in an area. Zoning changes that increase maximum height or floor area ratio (FAR) limits or modify required setbacks could result in scale changes that create land use impacts. Small or incremental changes in building scale may not be a significant adverse land use impact per se, depending on context and degree. For example, an increase in the height of midrise buildings from four to five stories, with the same uses, general configurations, and building footprint, would not typically require an adverse land use impact finding, although aesthetic impacts could be possible. Such a building would likely be able to fit similarly into the land use pattern with or without the change. (Section 3.3 Aesthetics evaluates potential aesthetic impacts of small-scale changes.)

    However, large-scale changes that alter building form in a more fundamental manner could create land use impacts. For example, introducing a 240-foot-tall residential tower in an area of two- to three-story lowrise multifamily structures could have a land use impact, as the tower would occupy the land in a completely different configuration than the lowrise structures. Scale impacts could include view blockage, decreased access to light and air at ground level, and reductions in privacy. This analysis considers four broad scale categories and identifies potential land use impacts when zoning is changed between categories.

    » *Single Family:* all Single Family Residential zones and Residential Small Lot for this purpose

    » *Lowrise:* including all LR zones

    » *Midrise:* MR zones and C, NC, and SM zones with height limits up to 75 feet

    » *Highrise:* HR zones and C, NC, and SM zones with height limits greater than 75 feet

Where more than one type of land use impact is present due to a proposed change, the land use impact would be more severe than if only one of the above impacts are present. As described in Chapter 2 and Section 3.3 Aesthetics, the MHA (M), (M1), and (M2) rezone suffixes are one way to approximate the magnitude of an MHA zone change. Distribution of these suffixes is summarized later in this Chapter, and in detail in the Aesthetics chapter, but as discussed above not every zoning change within an (M), (M1), or (M2) tier would have the same land use impacts. Therefore, a more nuanced metric is needed to identify land use impacts. The tables below identify the individual zoning changes within MHA tiers and their potential land use impact. Quantification of the specific amount of land affected by each zoning change can be found in Chapter 2 and Appendix H.

Exhibit 3.2–3 shows that most (M) tier zoning changes would have one type of land use impact, in the form of a density increase. The degree of land use impacts from the (M) tier zoning changes as minor, moderate or significant is described below in the Impacts Thresholds subsection.

As seen in Exhibit 3.2–4 most, but not all, of the (M1) tier zoning changes would have more than one type of land use impact. The most severe land use impacts would be in areas currently zoned single family that are rezoned to LR2, in which case there is potential for density, use and scale impacts. Changes from certain Lowrise zones to Neighborhood Commercial zones also have greater potential impacts, since density, use, and scale impacts would result. Changes from the Lowrise 1 zone to other Lowrise zones could result in minor or moderate density impacts. The degree of land use impacts from (M1) tier zoning changes as minor, moderate or significant is described below in the Impacts Thresholds subsection.

All (M2) tier zoning changes would have two or more types of land use impacts (Exhibit 3.2–5). Areas currently zoned single family, and lowrise areas that would be rezoned to NC would have the most severe impacts, as density, use, and scale impacts could occur.

In general, the potential for land use impacts and the severity of land use impacts tends to increase as the MHA tier increases, but the degree of impact varies depending on the specific zoning change, as well as on the surrounding zoning and uses. The degree of land use impacts of different zoning changes as minor, moderate or significant is described below in the Impacts Thresholds subsection. The distribution of land use impacts is discussed in the impacts of the Action Alternatives below.

Exhibit 3.2–3   Land Use Impacts by Zone Change, (M) Tier Zoning Increases

Zone Change	Type of Land Use Impact
Single Family → Residential Small Lot (RSL)	• **Density:** Proposal would allow an increase in density of households. • **Use:** No change in allowed use from residential. • **Scale:** Despite smaller front and rear yard setbacks, RSL retains the same height limit and introduces an FAR limit. RSL buildings would not alter the land use pattern and do not present a scale impact.
Lowrise 1 → Lowrise 1 (M) **Lowrise 1 → Lowrise 2 (M)**	• **Density:** The current density limit in the LR1 zone would be removed, allowing greater residential density, but height limits would remain the same or similar. • **Use:** No change in allowed use from residential. • **Scale:** None
Lowrise 2 → Lowrise 2 (M) **Lowrise 3 → Lowrise 3 (M)**	• **Density:** While these zones would have no maximum density limits*, development standard changes will increase likelihood that projects achieve higher densities. However, height limits and FAR requirements would be similar to existing regulations. • **Use:** No change in allowed uses. • **Scale:** None
Midrise → Midrise (M)	• **Density:** No maximum density limits, but height limits would increase slightly. • **Use:** No change in allowed use from residential. • **Scale:** None
NC30 → NC-40 (M) **NC-30 → NC-55 (M)** **NC-40 → NC-55 (M)** **NC-65 → NC-75 (M)** **SM-65 → SM-75 (M)**	• **Density:** While these zones would have no maximum density limits, development standard changes will increase likelihood that projects achieve higher densities. However, height limits and FAR requirements would be similar to existing regulations. • **Use:** None • **Scale:** None
NC-85 → NC-95 (M) **NC-125 → NC-145 (M)** **NC-160 → NC-200** **SM-D 40-85 → SM-D 95 (M)**	• **Density:** While these zones would have no maximum density limits, development standard changes will increase likelihood that projects achieve higher densities. However, height limits and FAR requirements would be similar to existing regulations. • **Use:** None • **Scale:** Larger height limit increases at the higher end of the NC zones (above NC-125) could be great enough to create a scale changes impact, depending on location and surrounding conditions. A detailed analysis of height and scale impacts is presented in Section 3.3 Aesthetics.

* Comparison is between the most intensive allowed housing type in the LR zone, apartments, for which there is no density limit under existing and proposed LR2 and LR3 zoning.

Source: City of Seattle, 2017; BERK, 2017.

Exhibit 3.2–4   Land Use Impacts by Zone Change, (M1) Tier Zoning Increases

Zone Change	Type of Land Use Impact
Single Family → LR1 (M1) **Single Family → LR2 (M1)**	• **Density:** Allows an increase in density of households. • **Use:** Potential to change land use from single family to multifamily. • **Scale:** Potential to change scale from single family to lowrise, though height limits would be the same, or similar.
Lowrise 1 → Lowrise 3 (M1)	• **Density:** The current density limit in the LR1 zone would be removed resulting in potential for greater residential density through increases to height and FAR. However, height limits and FAR requirements would be similar to existing regulations. • **Use:** None • **Scale:** None
Lowrise 2 → Lowrise 3 (M1)	• **Density:** No maximum density limits, but height limits would increase slightly. • **Use:** No change in allowed use from residential. • **Scale:** None
Lowrise 2 → NC-40 (M1) **Lowrise 2 → NC-55 (M1)**	• **Density:** Height increase combined with greater allowed lot coverage would result in moderate to significant increase in density. • **Use:** Change allowed land use to allow commercial. • **Scale:** Change in scale from lowrise to midrise. Potential that neighborhood commercial buildings could be arranged to occupy site in a more intensive manner.
Lowrise 3 → Midrise (M1)	• **Density:** Moderate increase in height limit and FAR would result in increased density. • **Use:** None • **Scale:** Change of scale from lowrise to midrise.
Lowrise 3 → NC-75 (M1)	• **Density:** Moderate increase in height limit and FAR would result in increased density. • **Use:** Change to allow commercial land use. • **Scale:** Change of scale from lowrise to midrise.
C/NC-40 → NC-75 (M1)	• **Density:** No maximum density limits, but height limits would increase more than 30 feet, resulting in deinsity impacts. • **Use:** No change in allowed use from commercial. • **Scale:** Both allow midrise buildings, none.
NC-65 → NC-145 (M1) **NC-85 → NC-145 (M1)** **NC-40 → SM-95 (M1)**	• **Density:** Increased density resulting from increased FAR in new zones and substantial height increases (50 feet or more), which could result in density impacts, depending on location and surrounding conditions. • **Use:** None • **Scale:** Change of scale from midrise to highrise.
NC-125 → SM-240 (M1)	• **Density:** Increased density resulting from increased height limit and FAR in new zone. • **Use:** None • **Scale:** While both height limits are highrises, the magnitude of the height increase constitutes a change in scale.

Source: City of Seattle, 2017; BERK, 2017.

Exhibit 3.2–5   Land Use Impacts by Zone Change, (M2) Tier Zoning Increases

Zone Change	Type of Land Use Impact
Single Family → LR3 (M2) **Single Family → NC-40 (M2)** **Single Family → NC-55 (M2)** **Single Family → NC-75 (M2)** **Single Family → SM-75 (M2)** **Single Family → SM-95 (M2)**	• **Density:** Allows an increase in density of households. • **Use:** Change land use from single family to multifamily and commercial. • **Scale:** Potential to change scale from single family to lowrise, midrise, and highrise.
Lowrise 1 → Midrise (M2)	• **Density:** Allows an increase in density of households. • **Use:** None • **Scale:** Change scale from lowrise to midrise.
Lowrise 2 → Midrise (M2)	• **Density:** Increase in density resulting from increased FAR. • **Use:** None • **Scale change:** Change scale from lowrise to midrise.
Lowrise 2 → NC-75 (M2) **Lowrise 2 → NC-95 (M2)**	• **Density:** Increase in density resulting from increased FAR. • **Use:** Change allowed land use to allow commercial. • **Scale:** Change in scale from lowrise to midrise.

Source: City of Seattle, 2017; BERK, 2017.

IMPACTS THRESHOLDS

As discussed in greater detail in the previous section, land use impacts due to changes in zoning can be a variety of different types. In addition, depending on existing conditions at a specific location, the land use impact due to any particular zoning change may have greater or lesser impact. In general, the impact analysis categorizes the degree of impacts to land use patterns and compatibility as follows:

• **Minor Impact:** Rezones or proposed changes to zoning regulations would result in a similar level of intensity as allowed under existing zoning, and the list of permitted land uses would be similar to current zoning. (M) tier rezones, as described above and in Chapter 2, would be in this category in nearly all cases. However, some moderate impacts could occur in certain (M) tier rezone areas, in specific locations, depending on proposed height limit increases, the existing land use pattern, presence or absence of transition to lower scale areas, and existing conditions in specific locations.

• **Moderate Impact:** Rezones or proposed changes to zoning regulations would result in an increase in development intensity (height, density, or FAR), but permitted land uses would remain similar to those allowed under current zoning. Most (M1) tier rezones would be in this category, along with some (M) tier rezones as noted above. Depending on the zones proposed and on the proposed height limit increases, along with the existing land use pattern, and existing

conditions in specific locations, some (M1) tier rezones may result in significant impacts as discussed below.

- **Significant Impact:** Rezones or proposed changes to zoning regulations would result in a substantial increase in development intensity (allowed density or building height), and the proposed zoning would permit new land uses not allowed under current zoning (e.g., rezoning a single-family residential area to allow commercial uses). This category would include all (M2) tier rezones and any (M1) tier rezones that fit the description above.

The location specific factors that could lead to a greater degree of land use impact in a particular zone change could include:

- Proximity of a low-intensity use, such as Residential Small Lot, to a more intensive use, such as industry or high-intensity commercial (e.g., along a zone or urban village boundary);

- Lack of height or scale transition between zones allowing similar uses, but substantially different heights or scales;

- Proximity of a high-intensity use or zone to a public open space, such as a park.

- Introduction of higher-intensity uses or building forms into an area of consistent, established architectural character and urban form, such as a historic district.

The locations of (M), (M1), and (M2) tier rezones by alternative are shown in Exhibit 3.3–22 and Exhibit 3.3–24 in Section 3.3 Aesthetics.

Impacts in Single Family Zoned Areas

As noted in the tables above, regardless of MHA tier, the greatest potential for significant adverse land use impact occurs in Single Family areas rezoned to higher intensities. These zoning changes would occur where single family zoning is present in existing or expanded urban villages. Urban villages with greater quantities of existing single family zones could experience more local land use impacts than urban villages with little single family zoning.

Impacts in Urban Village Boundary Expansion Areas

Most land in urban village expansion areas is currently zoned Single Family, and areas outside of existing villages have not been designated on the FLUM to receive focused housing and employment prior to this proposal. Therefore, areas with larger urban village boundary expansions will have greater potential for land use impacts. Land use impacts of urban village boundary expansions are also evaluated in the Seattle 2035 Comprehensive Plan EIS. Specific discussion of urban village boundary expansion areas is included below under discussion of Impacts of individual Alternatives as well as in Chapter 2 of this EIS.

Other Potential Land Use Issues

The following other issues contribute to potential land use impacts and are common to all alternatives:

- **Edges.** Where potential land use impacts are identified, the potential impact is not necessarily limited to the land within the rezone area. There is potential for conflicts and changes in character at the zone edge transition as well. Land use impacts in use, scale, or density changes could occur in transitions to single family locations outside the zone change. However, Comprehensive Plan 2035 Land Use Policy 1.4 provides for a range in scale and density permitted in multifamily, commercial, and mixed use projects in order to achieve moderate to high density and scale in urban centers, moderate density and scale in urban villages, and low to moderate density and scale in urban villages. In locations where land rezoned from greater intensity abuts or transitions to lower-intensity areas and uses, some spillover or proximity impacts may occur, including noise, increased pedestrian and vehicle traffic, competition for on-street parking, and changes to building form. Compatibility issues and minor conflicts such as these are common in any growing city, however. Depending on the alternative, the level of impact will vary from location to location.

- **Pressure for Further Zone Changes.** Zoning changes can create pressure for further rezoning of areas in proximity, although this would be controlled by Comprehensive Plan policy and zoning standards.

- **Changes from Commercial (C) to Neighborhood Commercial (NC).** Alternatives 2 and 3 include changes in zoning designation in urban villages from Commercial to Neighborhood Commercial zones. Since this change would not introduce a greater range of commercial uses, these changes are not considered to have adverse

land use impacts. The primary difference concerns building design and limitations on certain auto-oriented activities. Changing from C to NC does not affect scale or density, as long as the height designation is the same, but it may result in the creation of non-conforming uses and structures that would put limitations on the changes owners could make to their properties.

- **Incremental Development.** Development is expected to occur over time, and is not anticipated to occupy all sites, or even a majority of sites within a given neighborhood or area during the 20-year horizon addressed in this EIS. This chapter discusses impacts related to changes in zoning, but zone changes alone do not cause development. The incremental pattern of infill development would moderate the impact on land use.

- **Rate and Pattern of Growth.** The City anticipates that housing growth will occur relatively evenly over the course of the 20-year planning horizon and estimates where growth will occur. However, the locations and rates of growth could vary among individual urban villages in unanticipated ways. If a faster or concentrated pattern of growth unfolds in a specific area, greater land use impacts could occur.

- **Topography.** Steep topography can magnify land use change effects, particularly those related to scale. For example, a taller structure at the top of the hill can appear more prominent when viewed from lower on the hill. Taller structures on the downhill side of a slope can have greater potential to block views from locations further up the slope.

- **Block Pattern and Access.** Platted block patterns and access routes can influence land use impacts. For example, sites with alley access or where access is available from a side street may moderate use and density impacts by facilitating a wider variety of access routes to a site.

IMPACTS OF ALTERNATIVE 1 NO ACTION

Alternative 1 No Action is based on the growth strategy of the Seattle 2035 Comprehensive Plan and assumes that MHA would not be implemented in the study area. No area-wide zoning changes or affordable housing requirements would take place.

Most growth would occur in an intensive, urban mixed-use land use pattern within existing urban village boundaries. No urban village boundary expansions would occur. In particular, under current growth strategy policies, growth would be guided to those urban villages with light rail stations and very good transit service. Urban centers would continue to see primarily midrise and highrise development, while growth in urban villages would be a mix of lowrise and midrise development.

In the study area, land use patterns outside urban villages would not change significantly, and any change would be consistent with the Comprehensive Plan policies.

IMPACTS OF ALTERNATIVE 2

Alternative 2 would rezone areas in urban villages and other multifamily and commercial areas to implement MHA. Increases in development capacity would generally be proportional to each area's Seattle 2035 20-year growth estimates and would result in more intense land use in affected areas and some changes in building height, bulk, and form. Alternative 2 is based on the growth strategy outlined in the Seattle 2035 Comprehensive Plan, which concentrates land use changes in these same areas. However, the boundaries of some urban villages would expand and would incorporate and rezone some areas currently zoned single-family residential to allow smaller lots and multifamily housing. Compared to No Action, this would result in more pronounced land use changes in the form of changes to use, density, and building scale. These expansion areas are targeted in areas within a 5 to 10 minute walkshed of frequent transit stations. More information on, and maps of, the locations of these expansion areas can be found in Chapter 2 of this EIS and in the Seattle 2035 Comprehensive Plan 2035 EIS.

As noted in Chapter 2, the proposed (M1) and (M2) capacity increases are targeted and limited. Exhibit 3.2–6 shows the distribution of (M), (M1), and (M2) zoning changes for the study area overall and by neighborhood displacement risk and access to opportunity category.

Exhibit 3.2–6
Location of MHA Tiers in Alternative 2 and 3

Source: City of Seattle, 2017; BERK, 2017.

	Alternative 2			Alternative 3		
	M	M1	M2	M	M1	M2
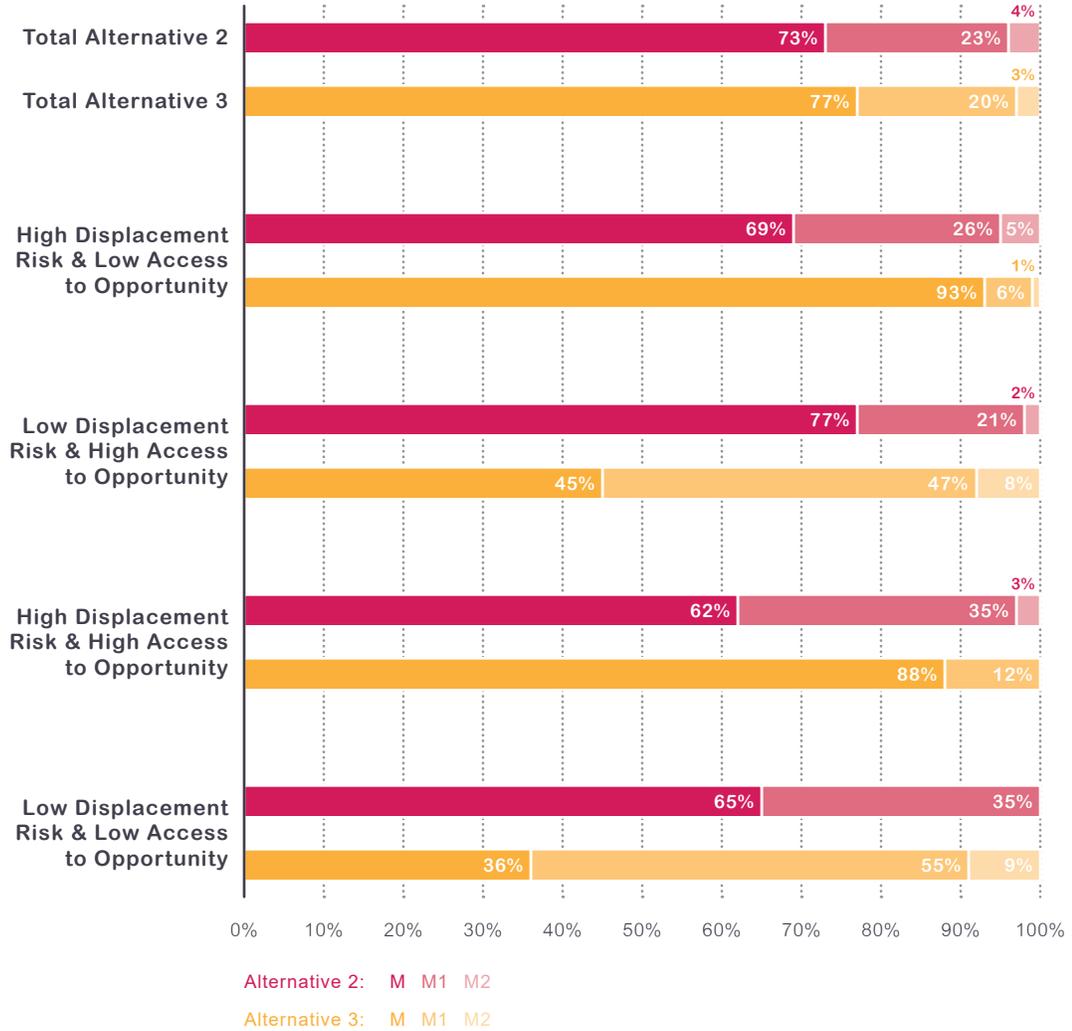
For Alternative 2 as a whole, 73 percent of the zoning changes are in the (M) tier, 23 percent are (M1), and 4 percent are (M2).

Overall, the land use pattern would be similar to Alternative 1, with some urban village boundary modifications and an incremental increase in the intensity and density of development in certain areas. Land use change would be greatest in rezoned single-family residential areas. Less change would occur in areas currently characterized by denser mixed-use development that receive an incremental increase in capacity.

Impacts to Urban Villages and Expansion Areas

The City's Growth and Equity Analysis includes an equitable development typology that categorizes urban villages according to displacement risk and access to opportunity. As described in Chapter 2, Alternative 2 would not explicitly consider risk of displacement or access to opportunity when distributing capacity increases to various urban villages. The analysis below describes the impacts on individual villages (and their expansion areas, where applicable), grouped by the equitable development typologies. Urban villages with frequent transit stations studied for expansion in the Seattle 2035 Comprehensive Plan would receive an urban village expansion reflective of a 10-minute walkshed from the frequent transit stations, as described in Chapter 2.

Refer to Chapter 2 and Appendix H for maps of specific proposed zoning changes in each urban village and the study area. Refer to the Comprehensive Plan Environmental Impact Statement for additional information about land use patterns in Urban Village expansion areas.

Urban Villages with High Displacement Risk and Low Access to Opportunity

For some areas with high displacement risk and low access to opportunity, density and height increases would lead to land use impacts as existing buildings are replaced with larger developments. Compared to Alternative 3, urban villages in this group would have a higher percentage of lands in the (M1) and (M2) Tiers where land use impacts are more likely (31 percent compared to 11 percent).

Specific high displacement risk/low access to opportunity areas with potential for land use impacts in Alternative 2 are described below. While not every potential land use impact is described in detail, the descriptions focus on significant impact, or the greatest potential for significant or moderate impact.

Rainier Beach. Areas in close proximity to the Rainier Beach light rail station would experience a variety of land use impacts, including significant impacts. Directly adjacent to the station, height limits would increase more than 45 feet, changing potential scale of development, and changing use to allow commercial. Existing Single family areas to the north and west of the station would be changed to multifamily zones with potential for density, scale and use impacts. Under Alternative 2, these impacts would also apply to 70 acres of expansion area, which is greater

than the 16 acres of expansion in Alternative 3. A new transition condition of Lowrise multifamily zoning at the edge of the urban village near Single Family zoned areas outside the urban village, would be created.

Othello. Existing single-family areas near the Othello light rail station would be changed to Lowrise multifamily presenting potential for density, use, and scale impacts, creating moderate impacts and significant impacts in some blocks being rezoned to Lowrise 3. Some commercially zoned lands along MLK Jr. Way S. would also have potential for scale increase impacts. Othello would potentially experience impacts across a greater geography as the expansion area would include 193 acres. Currently, this expansion area is predominantly single family and would likely see increases in density without creating an impact on scale. A new transition condition would be created for Residential Small Lot at the edges of the urban villages adjacent to Single Family zoned areas outside the urban village, with a few blocks of Lowrise zoning adjacent to single family including along 44th Ave. S, and S. Eddy St.

Westwood-Highland Park. Existing single family zones in several transitional areas at blocks behind existing commercial zones would be rezoned to multifamily, creating potential for use, scale, and density impacts, that would create moderate, and some significant land use impact. This would occur along streets including 20th, 25th and 26th Ave. SW, and in the blocks in the center of the urban village between SW Cloverdale St. and SW Barton St. The site of the Westwood Village shopping center would be of a different scale if redeveloped under proposed regulations.

South Park. Moderate land use impacts could result in areas rezoned from Single Family to Lowrise, to the north and south of existing multifamily areas flanking S. Cloverdale St. Blocks along S. Sullivan St., S. Thistle St., and S. Donovan St., would experience impacts associated with a change from single family to Lowrise. The majority of the village would see no major impacts to scale however, with the potential for no more than 15 feet of height increases along the S Cloverdale St. arterial roadway.

Bitter Lake. Several blocks with existing multifamily housing and low-scale commercial uses along Linden Ave N., could be changed to a greater scale resulting in moderate land use impacts. A few blocks of single family zoning at the edges of the north portion of the village along Stone Ave. N. and Fremont Ave. N. would be changed to Lowrise multifamily creating moderate land use impact. These changes to Lowrise would also decrease the amount of transition to Single Family zoned areas at the edge of urban village.

Impacts in these urban villages under Alternative 2 would include greater density and building heights and changes to physical form as uses and building types change. Urban villages in this group would have moderate and some significant land use impacts in Alternative 2.

Urban Villages with Low Displacement Risk and High Access to Opportunity

Additional growth in urban villages with low displacement risk and high access to opportunity would lead to density and height increases as existing buildings are replaced with larger developments. Compared to Alternative 3, urban villages in this group would have a much lower percentage of lands in the (M1) and (M2) Tiers, where severe land use impacts are more likely (23 percent compared to 55 percent).

Specific areas with potential for land use impacts in Alternative 2 are summarized below. While not every potential land use impact is described in detail, the descriptions focus on significant impacts, or the greatest potential for significant or moderate impact.

Roosevelt. Several blocks of existing single family zoning in transition areas at the edges of existing neighborhood commercial corridors would be changed to lowrise multifamily, resulting in moderate land use impact. A 4 acre expansion area between 14th and 15th Ave. NE within one block of NE 65th St. would experience minor land use impacts. The impacts would be similar to those in existing single family zoned areas inside the current urban village boundaries, that would be rezoned from Single Family to Residential Small Lot.

Wallingford. Blocks of existing single family zoning in transition areas at the edges of neighborhood commercial corridors would be changed to lowrise multifamily resulting in some moderate land use impacts. Impacted locations include the south frontage of N. 47th St., the west frontage of Meridian Ave. N., the east frontage of Midvale Ave. N., and the west frontage of Interlake Ave. N. Much of the residential portion of the village would have no changes to scale, and height increases would be no more than 15 feet along Stoneway Ave. N. and N 45th St.

Ballard. In the urban village boundary expansion at the east edge of the village, existing single family zoned areas would change to Neighborhood Commercial and multifamily along NW Market St. and adjacent blocks, creating potential for use, and density impacts, resulting in moderate impacts. The expansion area of 35 acres would see a predominantly single family residential area remain in residential use

in the Residential Small Lot zone, allowing an increase to density. The Residential Small Lot zone would provide a transition to Single Family Zoned areas outside of the urban village.

Madison–Miller. A few blocks of existing single family zoning near the community center along 19th Ave. E. south of Harrison St., and along 22nd Ave. E between E. John St. and E. Thomas St. would be changed to multifamily resulting in moderate impact. The city's only existing area of RSL zoning would be changed to a Lowrise multifamily zone. Impacts on scale of up to 15 feet could occur in much of the village in existing neighborhood commercial and multifamily zones.

Admiral. Approximately one block to the northwest of the 45th Ave. SW and SW Lander St. intersection, with existing single family zoning that is in a transition nearby existing neighborhood commercial and lowrise zoning, would be changed to lowrise multifamily resulting in moderate land use impact. Other potential impacts include additional density in residential areas and height increases of up to 15 feet in northern parts of the village.

West Seattle Junction. Areas of existing single family zoning at the edges of existing commercial and multifamily zones would be changed to lowrise multifamily, resulting in moderate land use impact. Much of the village would potentially experience minor or moderate impacts to scale with height increases of up to 15 feet. A 24-acre expansion area would see single family residential areas increase in density without a change in the residential use. One portion of the urban village expansion at the southeast of the village would be rezoned to Lowrise, however this area is almost completely bounded by an existing senior housing complex and lowrise and neighborhood commercial zoned lands, which mitigate potential transitions conflicts.

Crown Hill. Areas of existing single family zoning at the edges of existing commercial and multifamily zones along the 15th Ave. NW and NW 85th St. roadway corridors, would be changed to lowrise multifamily, creating moderate land use impact. Crown Hill would have an 80-acre urban village boundary expansion under Alternative 2 that would result in increases to density in areas to the west, south, and east of the current village boundaries. All of the urban village boundary expansion would be rezoned to RSL, except existing areas of multi-family or commercially zoned lands, resulting in minor land use impact.

Overall, Alternative 2 falls between No Action and Alternative 3 in terms of land use impacts in this category of urban villages. Most land use impacts are minor, with some moderate land use impacts.

Urban Villages with High Displacement Risk and High Access to Opportunity

Additional growth in urban villages with high displacement risk and high access to opportunity would lead to density and height increases as existing buildings would be replaced with larger developments. The land use pattern would become more urban and include more multifamily and mixed-use development. Compared to Alternative 3, urban villages in this group would have a higher percentage of lands in the (M1) and (M2) Tiers, where land use impacts are more likely (38 percent compared to 12 percent).

Specific areas with potential for land use impacts in Alternative 2 are described below. While not every potential land use impact is described in detail, the descriptions focus on significant impacts, or the greatest potential for significant or moderate impact.

Columbia City. Areas of existing single family zoning at the edges of existing commercial and multifamily zones would be changed to lowrise multifamily, primarily in locations between Rainier Ave. S, and MLK Jr. Way S. creating moderate land use impacts, and reducing scale transition at the north part of the urban village along S. Columbian Way. Blocks fronting onto S. Edmunds St. to the east of light rail, and several other blocks at the periphery of existing commercial areas, would be changed to lowrise with a Residential Commercial (RC) designation allowing for small scale commercial uses. This change create land use impact, but the degree is reduced to moderate by the RC commercial space size limitations. Columbia City's expansion area under Alternative 2 would cover 23 acres, which is a small percentage of the total urban village area, and would be likely to experience density, intensification of use, and scale impacts, resulting in moderate impact. Transition conflicts are mitigated in most of the urban village expansion by the presence of a greenbelt and rising topography to the west of the village expansion.

Lake City. Several areas of existing commercial zoning, on large parcels in low intensity commercial use with existing surface parking lots, would be changed to allow highrise scale development, introducing scale impacts that result in moderate land use impact. There is potential for significant impact in these blocks proposed for tower scale development, that are located around the existing neighborhood core along Lake City Way.

First Hill-Capitol Hill. A swath of land in north Capitol Hill currently characterized by multifamily housing and zoned LR3, would be changed to Midrise, introducing potential scale impacts, resulting in moderate land

use impact. The area is generally bounded by E. Aloha St. and E. Roy St. at the north, and the midblock north of E. Pine St. at the south. Scale impacts would also occur in the First Hill area on the southwest side of the village, but would be minor in nature due to the already tall zoning envelopes in this area.

North Beacon Hill. Areas of existing single family zoning at the edges of existing commercial and multifamily zones in the Beacon Ave. N corridor would be changed to multifamily, resulting in moderate land use impact and some significant land use impacts. Blocks between 17th Ave. S., and 18th Ave S. to the east of Beacon Ave., and blocks between S. McLellan St. and S. Steven St. west of Beacon Ave. would be changed from single family to Lowrise 3 resulting in significant land use impact. Several blocks of single family zoning adjacent to Jefferson Park would also be changed to multifamily resulting in a moderate impact. Overall, scale impacts would mostly be limited to a 15 feet increase in height. North Beacon Hill's expansion area under Alternative 2 would be 83 acres in size and would include both (M) and (M1). The expansion area along Beacon Avenue and Spokane Street would have potential height increases of up to 15 feet. Single family residential areas within the expansion area would have impacts associated with increased density without experiencing impacts related to scale or change of use. Where the urban village expands, a transition to single family areas is generally provided with a RSL zone.

North Rainier. Areas with a mix of existing multifamily and commercial zoning and uses to the south of the future light rail station, would have increases allowing greater intensity of use, and scale, creating moderate land use impacts. Changes in this area have potential for significant land use impact considering the close proximity of increased residential uses to heavy vehicle noise and traffic near I-90. Additionally, areas of existing single family zoning at the edges of existing commercial and multifamily zones would be changed to lowrise multifamily, resulting in moderate impacts. North Rainier would gain an additional 38 acres under Alternative 2's expansion area. These areas would see between 0 and 30 feet in height increases and would have both (M) and (M1) changes. The urban village expansion area at the east of the village in the vicinity of 30th Ave. S would change zoning from single family to Lowrise 1, which would have moderate land use impact, with potential for significant impact due to an existing condition of established, consistent architectural and urban form context of homes near the Olmsted Boulevard.

23rd & Union-Jackson. Areas with a mix of existing multifamily and commercial zoning and uses to the north of the future light rail station,

would have increases allowing greater intensity of use, and scale, resulting in moderate land use impact. Changes in this area have potential for significant land use impact considering the close proximity of increased residential uses to heavy vehicle noise and traffic near I-90. Additionally, areas of existing single family zoning at the edges of existing commercial and multifamily zones would be changed to lowrise multifamily throughout the urban village, resulting in moderate impact. The urban village boundary would expand towards the future light rail station to a greater degree than in Alternative 3, and in this location would apply more Lowrise 3 and Lowrise 2 designation (instead of Lowrise 1). The 23rd & Union-Jackson expansion area would include the area to the south of the current boundary near Interstate 90. The expansion area would predominantly see (M1) changes, and increased height impacts would be between 5 and 30 feet. Where Lowrise zoning is added at the edge of the urban village transitions to Single Family zoned areas would be reduced including along E. Alder St., and 20th, 21st and 25th Ave.

Northgate. A few large blocks between NE 97th Place and NE 103rd Street west of 4th Ave. NE, already in neighborhood commercial zones, adjacent to the future Northgate light rail station would see height limits substantially increased to allow towers, creating a scale change to a degree that would create moderate, to potentially significant land use impact depending on design choices and building configuration when new development takes place. In a location west of I-5, west of Meridian Ave. N one block of land would be changed to add land to the urban village in an areas of existing multi-family and commercial use, creating a moderate impact, and reducing the transition to adjacent single family zoned areas.

Urban Villages with Low Displacement Risk and Low Access to Opportunity

For areas with low displacement risk and low access to opportunity, density and height increases would lead to impacts on land use patterns as existing buildings are gradually replaced with newer and larger developments. Both urban villages in this category, Aurora-Licton Springs and Morgan Junction, would have more density increases than under Alternative 1 and less density increases than under Alternative 3. Height limit increases in both urban villages would be greater than Alternative 1 and similar to Alternative 3. The land use pattern would result in more density and changes to the physical form of single-family residential areas than both Alternatives 1 and 3.

Specific urban villages with potential for land use impact are described below. While not every potential land use impact is described in detail,

the descriptions focus on significant impacts, or the greatest potential for significant or moderate impact.

Morgan Junction. Areas of existing single family zoning at the edges of existing commercial and multifamily zones at the periphery of the neighborhood business district, would be changed to multifamily, with potential for scale, use, and density impacts, that would result in moderate land use impact. These include blocks between SW Graham St., and SW Raymond St., a block north of Fauntleroy Way SW, and a block along 44th Ave. SW to the north of SW Holly St. Transitions to single family areas outside of the urban village would be provided with the RSL zone.

Aurora-Licton Springs. Areas of existing single family zoning at the edges of existing commercial and neighborhood commercial zones in the Aurora Ave. N corridor would be changed to lowrise multifamily, with potential for scale, use and density impacts, creating moderate land use impact. Existing Commercially zoned lands in the Aurora Ave. corridor would be redesignated to Neighborhood Commercial to encourage a more pedestrian friendly environment, a change that does not render an adverse land use impact. Transitions to single family areas outside of the urban village would be provided with the RSL zone.

Overall Impacts to Villages and Expansion Areas

Alternative 2 would not explicitly consider risk of displacement or access to opportunity when distributing capacity increases to various urban villages. Some villages would experience greater impacts related to density, scale, and intensification of land use than others. Under this alternative the villages with the greatest land use and density impacts include Roosevelt, First-Hill Capital Hill, 23rd & Union-Jackson, North Beacon Hill, North Rainier, Columbia City, Othello, and Rainier Beach. Under this alternative, urban Villages with the greatest impacts to scale would be include First Hill-Capitol Hill, North Rainier, Rainier Beach, Westwood Highland Park, Northgate, and Lake City.

Distribution of Zoned Land Use

Another way to compare and summarize the land use impacts of the Alternatives is to consider the percentages of land zoned for different uses, as seen in Exhibit 3.2–7. For the purposes of this analysis Residential Small Lot (RSL) zones are broken out from Single Family zones due to some differences in character, although RSL is technically a single family land use and zone.

High Displacement Risk & Low Access to Opportunity
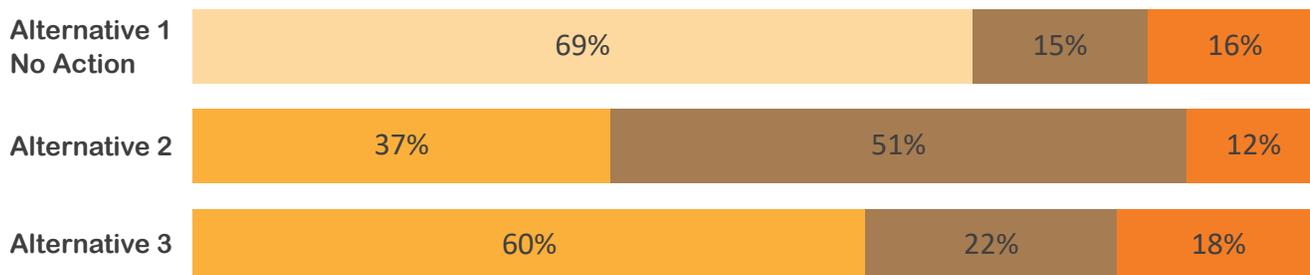
Alternative 1 No Action	69%	15%	16%
Alternative 2	37%	51%	12%
Alternative 3	60%	22%	18%

Low Displacement Risk & High Access to Opportunity

Alternative 1 No Action	46%	2%	28%	24%	0%
Alternative 2	36%	41%	22%	0%
Alternative 3	9%	69%	21%	0%

High Displacement Risk & High Access to Opportunity

Alternative 1 No Action	23%	53%	25%	0%
Alternative 2	14%	68%	18%	0%
Alternative 3	34%	44%	22%	0%

Low Displacement Risk & Low Access to Opportunity

Alternative 1 No Action	67%	15%	18%
Alternative 2	37%	45%	18%
Alternative 3	8%	74%	18%
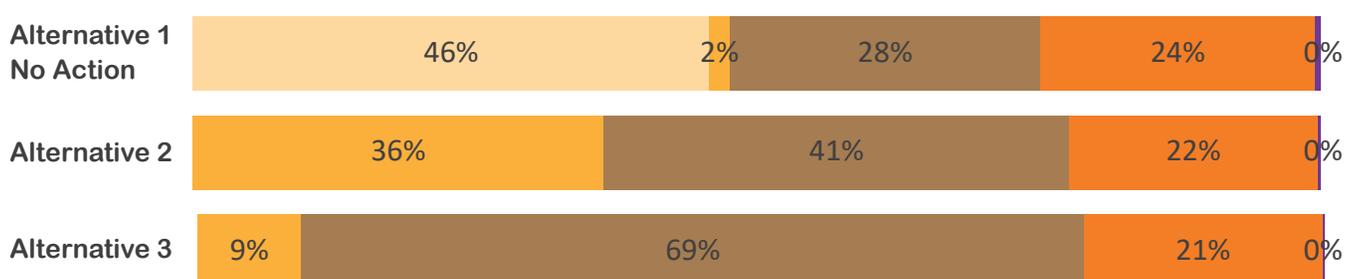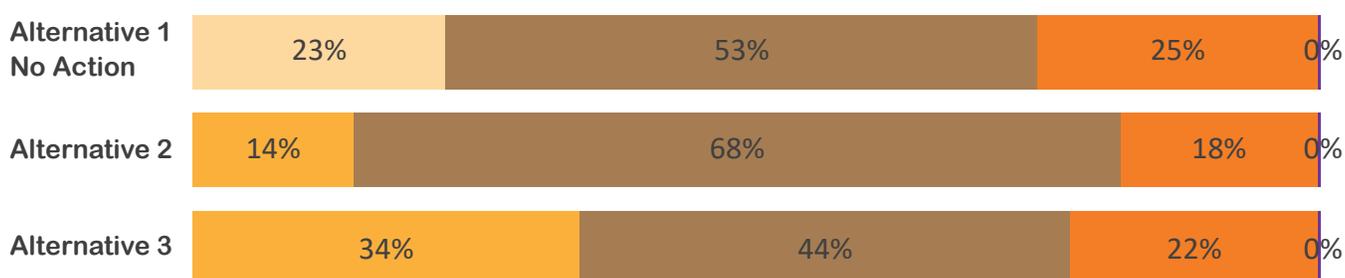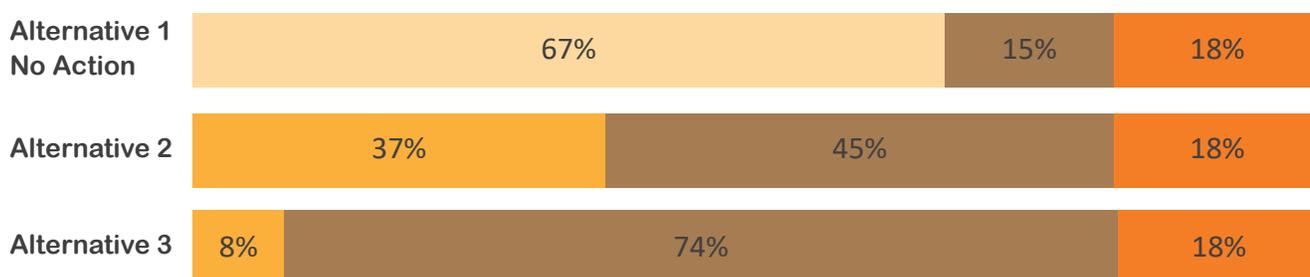
Exhibit 3.2–7   Percentage of Zoned Land Use

Source: City of Seattle, 2017; BERK, 2017.

Legend:
- Single Family
- Residential Small Lot
- Multifamily
- Commercial/Mixed-Use
- Industrial

Exhibit 3.2–7 shows that in Alternative 2, compared to No Action there is a shift in zoned land use away from Single Family to other land uses, as Single Family zones within urban villages are replaced. Greater percentage of multifamily zoned lands result in the urban villages regardless of the displacement risk and access to opportunity. In Alternative 2, compared to No Action the percentage of land in commercial / mixed use remains about the same or decreases slightly. Decreases in commercial mixed use are explained by urban village expansions where RSL or multifamily zoned lands are added.

For high displacement risk and Low Opportunity areas (Rainier Beach, Othello etc.) Alternative 2 would result in a greater share of multifamily zoned lands than Alternative 3, and a smaller percentage of RSL zoned lands.

For low displacement risk and High Opportunity areas (Wallingford, Fremont, Green Lake-Roosevelt etc.) Alternative 2 would result in smaller percentage of multifamily zoned lands than Alternative 3, and a larger percentage of RSL zoned lands.

Consistency with Policies and Codes

Rezones to implement MHA under Alternative 2 would be generally consistent with Comprehensive Plan policies and Land Use Code requirements. With few exceptions, the areas currently zoned Single Family 5000, Single Family 7200, and Residential Small Lot proposed for rezoning under Alternative 2 are either in existing urban villages and designated as Residential Urban Village or Hub Urban Village on the FLUM or are in proposed urban village expansion areas. As a part of the proposal, certain land use code rezone criteria would be modified to maintain consistency between proposed changes to single family zones in urban villages and the criteria.

Two locations, outside the Westwood Highland Park and Rainier Beach urban villages may not meet all current criteria in the Land Use Code for rezones of single family parcels to more intensive zones. These areas are proposed as part of MHA to increase immediate affordable housing investment opportunities on sites in public ownership, or ownership by a non-profit affordable housing provider.

IMPACTS OF ALTERNATIVE 3

Under Alternative 3, the study area land use pattern would generally align with the distribution of growth anticipated in the Seattle 2035 Comprehensive Plan. Like Alternative 2, some areas would be encouraged to develop with incrementally more density and scale than under Alternative 1 No Action. In Alternative 3 changes in development capacity consider the equitable development typology identified in the Growth and Equity Analysis when assigning the zone changes. The areas receiving relatively larger capacity increases, and also experience greater land use change, are those urban villages and expansion areas identified as having low displacement risk and high access to opportunity. In these locations, the production of more housing and MHA affordable housing in particular could reduce displacement impacts and could have positive impacts of improving access to opportunity for people of diverse socioeconomic backgrounds. Please see the discussion in Section 3.1 Housing and Socioeconomics.

Exhibit 3.2–6 shows the breakdown of MHA tiers for the overall study area under Alternative 3 and for urban villages categorized according to the displacement risk and access to opportunity typology. Potential land use impacts to locations in these categories are discussed in more detail below.

Impacts to Urban Villages

Under Alternative 3, decisions about where to focus capacity increases, and the extent of capacity increases, which could result in land of changes, would be guided by consideration of the risk of displacement and access to opportunity of individual urban villages. The analysis below describes the impacts on individual villages (and their expansion areas, where applicable), grouped by the equitable development typologies. All urban villages with a frequent transit station studied for urban village expansion as a part of the Seattle 2035 Comprehensive Plan would receive an urban village expansion reflective of a 5-10 minute walkshed from the frequent transit stations.

Urban Villages with High Displacement Risk and Low Access to Opportunity

Under Alternative 3, areas with low access to opportunity and a high displacement risk would be considered for incremental capacity increases compared to Alternative 1 (i.e., Seattle 2035 Comprehensive Plan). Most development capacity increases would be (M) tier rezones

(93 percent) and there would be limited (M1) tier rezones (7 percent). No (M2) rezones would be implemented in the urban villages in this category, which include Rainier Beach, Othello, Westwood-Highland Park, South Park, and Bitter Lake. As a result, compared to Alternative 2, urban villages in this group would have much lower amounts of lands in the (M1) and (M2) tiers where land use impacts are more likely.

Urban Village expansions for these same urban villages would be smaller than under Alternative 2. Boundary expansions would approximate five-minute walksheds from frequent transit stations, compared with 10-minute walkshed under Alternative 2. Urban village expansions under Alternative 3 would promote a relatively more compact pattern of land use intensity around transit nodes compared to Alternative 2.

Specific areas with potential for land use impact in Alternative 3 are described below. While not every potential land use impact is described in detail, the descriptions focus on significant impacts, or the greatest potential for significant or moderate impact.

Rainier Beach. In a few blocks directly adjacent to the Rainier Beach light rail station, height limit would increase, changing potential scale of development, and several limited existing Single family areas to the north and west of the station, would become multifamily zones with potential for density, scale, and use impacts. These changes would result in moderate land use impact. The extent of these changes is more localized to the light rail station than in alternative 2. Rainier Beach would have a 16 acre expansion on the west side of the current village boundary, wherein single family areas would have minor land use impacts due to density increases under the (M) Tier changes. In most cases a transition to single family areas is provided with the RSL zone. At the south of the urban village some Lowrise would be located at the edge, however it would be adjacent to a band of rugged hillside lands that would mitigate transition conflicts.

Westwood-Highland Park. A few blocks of existing single family zones in transitional areas behind existing commercial zones would be rezoned to multifamily, creating potential for use, scale, and density impacts, resulting in moderate land use impact. The extent of these changes is more limited than in alternative 2, and is found in two locations along 18th Ave. SW and 28th Ave. SW. The changes to scale in these two locations would be consistent between Alternatives 2 and 3.

South Park. Several blocks would be rezoned from Single Family to Lowrise north and south of existing multifamily areas flanking S Cloverdale St. These changes are more limited than in Alternative 2,

located along the south frontage of S. Sullivan St. and along S. Donovan St. A large portion of South Park would have no zoning changes and no MHA implementation under Alternative 3, retaining existing Single Family zoning. As with Alternative 2, some changes to scale in the range of 5 to 15 feet would occur along S Cloverdale St.

Urban Villages with Low Displacement Risk and High Access to Opportunity

Urban villages with low displacement risk and high access to opportunity would experience development capacity increases through zoning changes and boundary expansions to approximate 10-minute walksheds from transit nodes. In Alternative 3, most urban villages with low displacement risk and high access to opportunity have at least some blocks with (M2) tier rezones. Compared to Alternative 2, land use changes in these neighborhoods would be relatively greater, with larger increases in intensity and potentially greater conflicts. The nature of potential impacts is discussed above, and in Section 3.3 Aesthetics pertaining to aesthetics and development character. Compared to Alternative 2, urban villages in this group would have a much higher percentage of land in the (M1) and (M2) tiers, where land use impacts are more likely (55 percent compared to 23 percent).

Specific areas with potential for land use impacts in Alternative 3 are described below. While not every potential land use impact is described in detail, the descriptions focus on significant impacts, or the greatest potential for significant or moderate impact.

Green Lake. Several areas of existing single family zones in transitional areas behind existing commercial zones would be rezoned to multifamily, creating potential for use, scale, and density impacts, resulting in moderate impact. A swath of land at the east of the village would be changed from Lowrise multifamily to midrise multifamily creating potential for scale impacts, and moderate land use impact. However, a high percentage of lands in the area are already developed with relatively dense multifamily housing, which would mitigate context and scale impacts of additional multifamily housing in the area. Allowed height increases between 5 to 15 feet would be allowed for a large portion of the village.

Roosevelt. All areas of existing single family zoning within the urban village would be changed to varied Lowrise multifamily zones, creating potential for use, density and scale impacts, resulting in moderate and some significant land use impacts. These areas are at the periphery of the commercial core extending to the village boundary. In areas including

blocks north or Ravenna Park and blocks north of Roosevelt High School, zoning changes to Lowrise 1 and 2 zones have potential for significant land use impact due to the existing condition of consistent, established architectural and urban form character. One area of existing single family zoning in the vicinity of the large Calvary Baptist church structure would be changed to Lowrise 3 creating potential for significant impact, although the impact of this specific change is moderated by the presence of the existing church structure and other recent development in the immediate area.

The urban village boundary would be expanded east of 15th Ave NE, where several blocks of existing single family zoning abutting 15th Ave. NE and NE 65th St. would be changed to Lowrise multifamily, creating potential for scale, density and use impacts that result in moderate impact. Currently these areas are predominantly single family and would see impacts to density, with the (M1) areas potentially experiencing intensification of use as well as scale impacts. However, the pattern of existing commercial and multifamily structures fronting NE65th St. to both the east and west of the proposed expansion area mitigate potential use incompatibility at this location. In total, Roosevelt's urban village boundary expansion would be 17 acres, and would have a mix of (M) and (M1) Tiers applied. Proposed RSL areas extend several additional blocks further compared to Alternative 2, and would provide transition to single family zoned areas outside of the village.

Wallingford. All areas of existing single family zoning within the urban village would be changed to varied Lowrise multifamily zones, creating potential for use, density and scale impacts, resulting in moderate and some significant impacts. Changes from Single Family to the LR2 and LR3 zone would occur at transitions behind existing neighborhood commercial zones. The area between Stone Way North and Aurora Ave North would have a high concentration of such changes. While this area is already characterized by a mix of small multifamily, and single family structures, the proposal would create potential for focused significant land use impacts here. Lowrise 2 and Lowrise 3 zoning would be located along the frontages of Midvale Ave. N., which has a narrow right of way, which could increase the severity of a major land use change due to complications for vehicle circulation to markedly larger scale buildings. Lowrise 2 zoning is proposed for the frontages of Woodland Park Ave. N., which has a much wider right of way, which could better accommodate increased circulation demands associated with greater density. A triangular area bounded at the northwest by Green Lake Way would be changed from single family zoning to Lowrise 3 creating significant land use impacts, although the potential for impact is mitigated

to some degree by close proximity to mixed commercial uses. Transitions would be reduced at all edges of the urban villages as Lowrise 1, 2, and 3 zones would be located across street right of ways from adjacent single family zoned lands.

Ballard. In the urban village boundary expansion at the east edge of the village, existing single family zoned areas would change to Neighborhood Commercial and multifamily along NW Market St and adjacent blocks, creating potential use and density impacts, that would result in moderate impact. The expansion is larger in Alternative 3 and includes more Lowrise multifamily instead of RSL, resulting in moderate land use impact in a larger area of existing single family zoning. Ballard's expansion area under Alternative 3 would be 48 acres in size and would result in a variety of impacts as a result of the application of all three MHA Tiers. The greatest impacts would be concentrated along NW Market St. However, high intensity mixed used along Market St. to the west, and other multi-family uses along Market St. to the east, would mitigate use and scale impacts in the location. Heights would be allowed to increase between 5 and 30 feet in the expansion area. Existing Lowrise zoned lands along NW 60th St. and the vicinity would be increased to a higher density Lowrise zone creating moderate land use impact.

Madison–Miller. All existing single family zoning in the urban village near the community center would change to multifamily, creating potential for use, scale, and density impacts, resulting in moderate and some significant land use impacts. The extent of the change to multifamily is greater than in Alternative 2. An existing condition of consistent, established architectural and urban form character present in blocks along 18th, 19th, and 22nd Ave. E, heighten the potential for significant land use impact. The area between E. John St. and E. Thomas St., and 21st and 23rd Ave. E. would be changed from Single Family zoning to Lowrise 3 creating significant impact. Additionally, multifamily zoning would replace the city's only existing area of RSL zoning.

Eastlake. The zoning of several blocks west of Interstate 5 would change from Lowrise 3 to Midrise, creating the potential for a scale change impact, resulting in a moderate impact. The severity of this change could be increased due to the potential location of increased residential density in proximity to high amounts of noise and traffic on the nearby I-5 freeway. Height limit increases of up to 15 feet would occur in a majority of the village. The extent of the intensification of use and density impacts would be greater than under Alternative 2. An area of Lowrise 2 zoning east of Yale Ave. would be proposed for Lowrise 3 zoning. Impacts of the

resulting height increase from this change could be heightened due to the topography that slopes down towards Lake Union.

Admiral. All blocks of existing single family zoning within the urban village in transition areas between existing neighborhood commercial zones and the edges of the village, would be changed to Lowrise multifamily, creating potential for density, scale, and use impacts, resulting in moderate and some significant impacts. The share of multifamily, rather than RSL, is greater in Alternative 3. One block located to the northwest of the 45th Ave. SW and SW Lander St. intersection, with existing single family zoning that is in a transition area to existing neighborhood commercial and lowrise zoning, would be changed to Lowrise 3 zoning, creating potential for significant impact. However, since the site is not currently in single family residential use, impacts of denser multifamily development there may have less intense land use impacts than other examples of this zoning change. Transitions to single family areas at all edges of the urban village would be reduced, as more Lowrise zoning would be located adjacent to single family zoned areas.

West Seattle Junction. All areas of existing single family zoning within the urban village would be changed to varied Lowrise multifamily zones, creating potential for use, density and scale impacts, resulting in moderate and some significant impacts. These areas surround the commercial core extending to the urban village boundary, which would expand south and east to a greater degree than in Alternative 2. Several blocks of existing single family zoning would change to Lowrise multifamily, creating potential for scale, density and use impacts. The 47-acre expansion area in Alternative 3 would include both (M) and (M1) Tier changes and would result in height impacts of zero to 15 feet. A band of single family zoning on the east frontage of 32nd Ave. SW, and a several blocks between SW Edmunds St. and SW Hudson St., would change to Lowrise 3 zoning resulting in significant land use impact. Transitions to single family areas at all edges of the urban village would be reduced, as more Lowrise zoning would be located adjacent to single family zoned areas.

Crown Hill. Commercial zones along 15th Ave NW would have height increases, and the depth of the commercial zones would be extended to the east and west of the corridor where existing zoning is single family. Where commercial zones are extended, density, use, and scale impacts could occur, creating significant land use impact. The potential for use impact is notable here, as commercial uses would be allowed to abut streets with existing residential character and use patterns. Additionally, all areas of existing single family zoning in the urban village would be changed to various Lowrise multifamily zones, creating potential for use,

density and scale impacts. The urban village boundary would expand to a full 10-minute walkshed, and most land in the expansion would be RSL, with potential for density impacts only. The Crown Hill expansion area under Alternative 3 would be 84 acres in size and would include density changes in the residential areas. More intense impacts, including significant impacts, would occur along 16th Ave NW. and Mary Ave. NW. There would be few changes to scale in the expansion area, except for the area within one block of 15th Ave NW south of NW 80th St.

Urban Villages with High Displacement Risk and High Access to Opportunity

To avoid catalyzing displacement in areas with high displacement risk and high access to opportunity, this category of urban villages would receive more moderate development capacity increases compared to Alternative 2. Only one urban village in this category would include any tier (M2) rezones, and the remaining villages would primarily implement tier (M) rezones. Changes to land use patterns would resemble those discussed for urban villages with low displacement risk and high access to opportunity. Compared to Alternative 2, urban villages in this group would have a much lower percentage of land in the (M1) and (M2) tiers, where land use impacts are more likely (12 percent compared to 38 percent).

The expansion areas for these urban villages with transit nodes would approximate a walkshed of five minutes or less; the more compact area would result in reduced potential geographic extent of change and potentially fewer conflicts at the boundaries of surrounding residential areas outside of these urban villages.

Specific urban village with potential for land use impact in Alternative 3 are described below. While not every potential land use impact is described in detail, the descriptions focus on significant impacts, or the greatest potential for significant or moderate impact. Columbia City: Several blocks close to the Columbia City light rail station with Single Family zoning would become multifamily zones with potential density, scale, and use impacts, resulting in moderate impact. These changes are more concentrated near the light rail station than in Alternative 2. Blocks fronting S Edmunds St east of the light rail station and several blocks adjacent to existing commercial areas would change to Lowrise with a Residential Commercial (RC) designation allowing for small-scale commercial uses. This creates potential use impacts, but the degree is moderated by the size limitations for commercial spaces in RC zones.

North Beacon Hill. Single-family areas at the edges of existing commercial and multifamily zones in the Beacon Ave corridor would

become multifamily, creating potential for use, scale, and density impacts, resulting in moderate impact. The urban village boundary expansion is much smaller than Alternative 2 and would primarily include RSL zoning, with potential for density impacts only. The Alternative 3 expansion area in North Beacon Hill would include 22 acres at the southern end of the village, including areas along Beacon Ave. There would be no impacts to scale in the expansion area apart from up to 15 feet of height increase along Beacon Ave. Transition to single family areas at the edge of the urban village would be provided with the RSL zone in most instances.

North Rainier. A few blocks with a mix of existing multifamily and commercial zoning and uses south of the future light rail station would have zoning changes allowing greater intensity of use and scale, resulting in some moderate impacts. Existing single-family areas at the edges of existing commercial and multifamily zones would become lowrise multifamily. The extent of the changes to intensity of use are more limited than in alternative 2 while the changes to scale are comparable. A small urban village boundary expansion of about three half-blocks would be located at the east of the village, and would result in minor impacts, since it would be a RSL zone that provides transition to adjacent single family areas.

23rd & Union-Jackson. A few areas of existing single family zoning at the edges of existing commercial and multifamily zones would be changed to Lowrise multifamily, creating potential use, scale, and density impacts, resulting in moderate impacts. However, most existing single family areas in this urban village would become RSL with potential for changes to density only, resulting in minor impacts. An expansion area of 18 acres under Alternative 3 would primarily encompass the area that overlaps with Interstate 90 right of way to the south of the current village boundaries. Developable areas within the expansion area would have scale impacts of up to 30 feet.

Urban Villages with Low Access to Opportunity and Low Displacement Risk

Under Alternative 3, areas with low displacement risk and low access to opportunity would receive moderate development capacity increases through rezones. The urban village boundary expansions would include the full ten-minute walkshed expansions from frequent travel nodes, as with Alternative 2. These expansions would result in larger areas in which land use would intensify. In these urban villages, the expansion areas would redevelop with incrementally greater height and density.

Specific areas with potential for land use impacts in Alternative 3 are described below. While not every potential land use impact is described in detail, the descriptions focus on significant impacts, or the greatest potential for significant or moderate impact.

Morgan Junction. Tier (M2) rezones would occur in the center of Morgan Junction, where height limit increases in the business district could create a scale impact, and result in significant land use impact. Few existing structure in the business district are more than 2-3 stories tall. Existing single-family areas at the edges of existing commercial and multifamily zones surrounding the neighborhood business district would become Lowrise multifamily, with potential for scale, use, and density impacts, resulting in moderate and some significant land use impacts. The application of multifamily zoning instead of RSL is more widespread in Alternative 3, creating potential for more severe land use impacts. Blocks including a block north of Fauntleroy Way SW, and a block along 44th Ave. SW to the north of SW Holly St. would be changed from single family to Lowrise 3 creating a significant land use impact. Transitions to single family areas at the edges of the village would be reduced in several locations where Lowrise 1 or 2 zones would be located adjacent to single family zoned areas.

Aurora-Licton Springs. Areas of existing single-family zoning at the edges of existing commercial and neighborhood commercial zones in the Aurora Ave N corridor would become Lowrise multifamily, with potential for scale, use, and density impacts, resulting in moderate land use impacts. In Alternative 3, Lowrise zones would extend to the urban village boundaries. This would reduce transitions to single family zoned areas outside of the urban village. Existing land with Commercial zoning in the Aurora Ave corridor would be redesignated Neighborhood Commercial to encourage a more pedestrian-friendly environment, a change unlike to cause adverse land use impacts.

Overall Impacts to Villages and Expansion Areas

In Alternative 3 changes in development capacity would be made based on the neighborhood typologies identified in the Growth and Equity Analysis. The villages and expansion areas receiving relatively larger capacity increases, and also experiencing greater land use change, are those urban villages and expansion areas identified as having low displacement risk and high access to opportunity.

Villages with high displacement risk and low access to opportunity would experience relatively less land use impacts than other villages under Alternative 3, and overall fewer land use impacts than under Alternative 2.

Distribution of Zoned Land Use

Exhibit 3.2–7 shows that, like Alternative 2, zoning in Alternative 3 would shift land use from Single Family to other land uses, as Single Family zones in urban villages are changed to multifamily or commercial zones. Urban villages would have more multifamily-zoned land regardless of the levels of displacement risk and access to opportunity. In Alternative 3, compared to No Action the percentage of land in commercial / mixed use remains about the same or decreases slightly. Decreases in commercial mixed use are explained by urban village expansions where RSL or multifamily zoned lands are added.

For high displacement risk and Low Opportunity areas (Rainier Beach, Othello etc.) Alternative 3 would result in a lower share of multifamily zoned lands than Alternative 2, and a higher percentage of RSL zoned lands.

For low displacement risk and High Opportunity areas (Wallingford, Fremont, Green Lake-Roosevelt etc.) Alternative 3 would result in a significantly larger percentage of multifamily zoned lands (69 percent) than Alternative 2 (41 percent), and the percentage of RSL zoned lands would be relatively small (9 percent).

Consistency with Policies and Codes

Like Alternative 2, rezones to implement MHA under Alternative 3 would be generally consistent with Comprehensive Plan policies and Seattle Land Use Code requirements. Most areas currently zoned Single Family 5000, Single Family 7200, and Residential Small Lot proposed for rezoning under Alternative 3 are in urban villages and designated as Residential Urban Village or Hub Urban Village on the comprehensive plan Future Land Use Map or are in proposed urban village expansion areas.

Three specific locations outside the Westwood–Highland Park, Ballard, and Roosevelt Urban Villages may not meet all current criteria in the Land Use Code for rezones of single-family land to more intensive zones. Some of these areas are proposed as part of MHA to further immediate affordable housing investment opportunities on sites in public ownership, or ownership by a non-profit affordable housing provider. In the Wedgewood area west of the Roosevelt urban village, the land use change would support a more active pedestrian friendly environment, as articulated by community members as a preference for the area.

3.2.3 MITIGATION MEASURES

INCORPORATED PLAN FEATURES

The Impacts section provides a description of land use impacts, only some of which considered to be significant adverse impacts in the context of Seattle's urban setting. Adopted regulations and commitments include the implementation of land use policies and zoning patterns that consider the potential for land use incompatibilities and avoid them through use of transitions in intensity, use restrictions, and/or avoiding proximity of certain kinds of zones. These measures are already implemented through the Land Use Code (Title 23) in general, through the adopted MHA framework (SMC 23.58.B and 23.58.C), SEPA rules and policies (Title 25), and Design Review (SMC 23.41)

The Action Alternatives include the following features intended to reduce adverse impacts associated with MHA implementation:

- The production of more low-income housing would allow more people including low-income households to live in areas with high access to opportunity.

- Changes in intensity permitted by MHA rezones are generally minor to moderate in degree. Although some changes to land use would occur in rezoned areas, most would not be considered significant when viewed in the context of existing land use patterns and the city's planned growth. Anticipated changes are generally consistent with the Seattle 2035 Comprehensive Plan.

- Expanding urban village boundaries near high-frequency transit and increased housing capacity in these areas would allow more households (both low-income households and those living in market-rate housing) to live near areas with good transit service, improving mobility, reducing additional demand for single-occupancy vehicles, and mitigating against the consequences associated with locating low density development (and thus less residents) near opportunities for transit ridership.

- Land use changes that create more gradual transitions between higher- and lower-scale zones, may mitigate land use impacts over the long term as this may achieve less abrupt edges between land uses of different scale and intensity.

- Adoption of MHA would implement the goals and policies of the Comprehensive Plan, specifically Land Use Policies 1.3 and 1.4. The proposal would increase housing development capacity and provide greater access to affordable housing and services. The

action alternatives would also amend development regulations to require transitions between higher intensity and lower intensity zones, specifically through design features, such as upper-story setbacks, increased ground-level setbacks adjacent to residential zones (NC zones), and limits on lot coverage (MR zones). These requirements are further discussed in Section 3.3 Aesthetics.

REGULATIONS AND COMMITMENTS

- Chapter 23.41 of the Seattle Municipal Code establishes citywide requirements for Design Review. The Design Review process ensures that new development complies with adopted design standards and development regulations and is compatible with surrounding land uses.

OTHER POSSIBLE MITIGATION MEASURES

The following tools are available if the City wishes to proactively mitigate identified land use impacts in the study area:

- Amend zoning regulations in urban villages to explicitly address transitions to surrounding areas, particularly single-family residential areas adjacent to urban village boundaries. Options include transitional height limits, and particular setbacks that would apply to parcels that are adjacent to urban village boundaries. Design standards, as described in the Mitigation Measures section of Section 3.3 Aesthetics may provide mitigation.

- Implement specific regulations for infill development in urban village expansion areas to address temporary land use incompatibilities that could arise as newer, more intense development occurs alongside existing lower-intensity uses.

- Implement specialized development standards to address (M2) Tier Rezones or other land use changes that would result in a significant change of use or scale. Examples include limiting commercial uses on certain street frontages when changing use from non-commercial to commercial, or increasing setback requirements to match certain established neighborhood context.

- Address potential land use impacts as part of neighborhood-level planning efforts. This could include measures to address transitions and density and it could include planning for and making investments in livability improvements, such as open space or streetscape improvements near areas of land use impact.

- Consider topographical changes, and reduce the proposed degree of land use change, or select a lesser intensive alternative, in specific locations, where topography could exacerbate impacts.

- Consider specific block patterns and access conditions (such as lack of an alley, where mitigation will more likely be needed), and reduce the degree of land use change, or select a lesser intensive alternative, in specific locations with constraints.

3.2.4 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

Under all three alternatives, Seattle would experience housing and job growth, much of it expected to occur in locations in the study area. Generally, these areas will see an increase in building height and development intensity as some areas convert from lower-density residential to higher-density patterns and a more urban character. Some of these changes to land use patterns would rise to the level of a significant land use impact, and would be an unavoidable consequence of MHA, which uses the availability of increased development capacity as an incentive to generate needed affordable housing. Such changes are also an expected and common outcome of the continuum of change of urban development form over time as urban population and employment growth occurs. Some localized land use conflicts and compatibility issues in the study area are likely to arise as growth occurs; adopted regulations and procedures would mitigate the impact of changes.

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3.3

AESTHETICS.

This section focuses on potential changes to physical land use patterns, height, bulk and scale of potential development and implications for land use compatibility that could occur if the City implements MHA rezones.

3.3.1 AFFECTED ENVIRONMENT

This section addresses the existing development character and urban form in Seattle, including building height, bulk, and scale. The section also describes the existing regulations that influence the aesthetics of new development. This review provides a baseline for analyzing the impacts of the alternatives citywide and in urban villages.

DEVELOPMENT, HEIGHT, SCALE, AND CHARACTER

As described in Section 3.2 Land Use, Future Land Use Map (FLUM) designations, zoning, and development regulations govern development in Seattle. Development regulations determine permitted uses and the physical form new buildings, including height and setbacks, which influences urban character. This section describes existing regulations that influence the design and scale of urban development and the City's Design Review process.

City of Seattle

The height, bulk, scale, and character of development vary considerably across Seattle. Seattle's zoning regulations include limits on building height, density, floor area ratio (FAR), and lot coverage and minimum setbacks. These qualities all contribute to the overall intensity of development in a given location.

Development intensity describes the extent to which a site is used and the magnitude of development; even among similar land uses, intensity can vary based on design factors. Building height and FAR limits are two important regulations that directly influence how intense a development appears. FAR is the ratio of a building's floor area to the size of its lot. For most Seattle zones, the City has established both a maximum allowed height and a maximum allowed FAR. The relationship between building height and FAR serves as a shorthand for assessing the "bulkiness" of a building. For example, a tall building with a low FAR will occupy less of its building site and appear less "bulky" (although taller) than a relatively short building with a higher FAR, even though both may contain the same volume. Which form is preferable or perceived as more attractive is partly subjective but also depends on the surrounding context. Taller buildings are a common development form that use urban land more efficiently.

Exhibit 3.3–1 identifies maximum allowed building heights in Seattle, providing a general representation of where higher development intensities are allowed under current development regulations. Buildings in most of Seattle are limited to relatively low heights (30–40 feet) and considered lowrise development. Midrise development (roughly 4–7 stories in height) and highrise development is allowed primarily in urban centers and urban villages.

Urban Centers, Urban Villages, and Manufacturing/Industrial Centers

Urban Centers

Exhibit 3.3–1 shows that Downtown and South Lake Union have greater maximum building heights than the other four urban centers. Maximum heights in Downtown are up to 440 feet in north Downtown and unlimited in the commercial core. Maximum FAR is generally less 3.0 in Belltown and along the waterfront but 20.0 in the commercial core. Portions of Pioneer Square have comparatively low height limits but no limit on FAR. In South Lake Union, maximum heights range from 55 to 440 feet, and maximum FAR limits reach 7.0.

Zoning in the First Hill–Capitol Hill, University District, Northgate, and Uptown Urban Centers allows less intensive development. Maximum heights are predominantly 160 feet or lower, and the maximum allowed FAR ranges from 3.0 to 8.0. The Highrise Multifamily zone in First Hill–Capitol Hill allows buildings up to 300 feet in height.
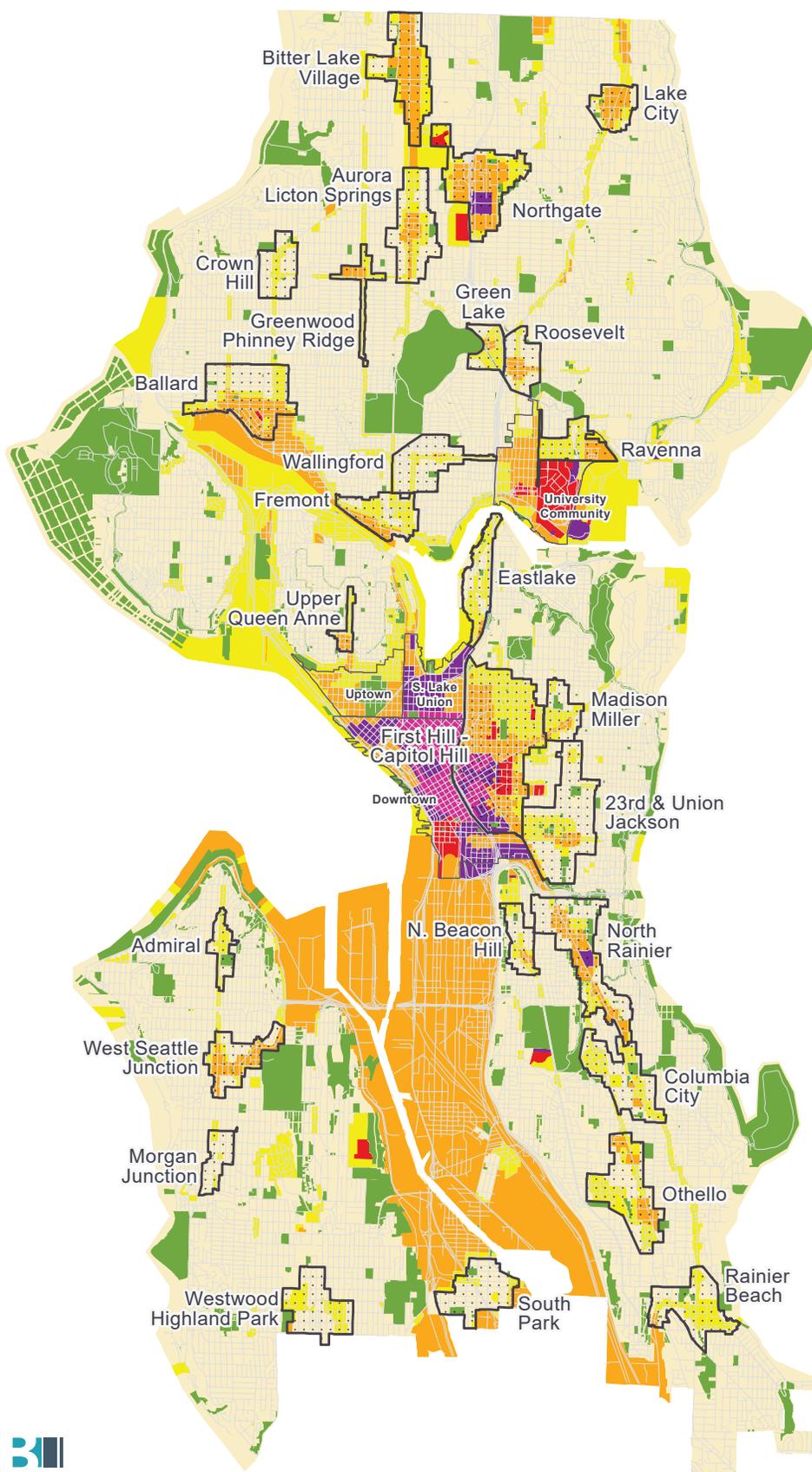
Exhibit 3.3–1
Citywide Allowed Height

Urban Centers/Villages

- In MHA Study Area
- Outside MHA Study Area

Maximum Zoning Heights (Feet)

- < 30
- 31 – 50
- 51 – 85
- 86 – 120
- 121 – 240
- > 240

Source: City of Seattle, 2017; BERK, 2017.

Urban Villages

Many urban villages are predominantly residential in terms of land use and character and organized around a compact commercial/mixed-use node or corridor. The size, mix, and intensity of buildings in these nodes vary among different categories of urban villages. As shown in Exhibit 3.3–1, maximum height limits inside and immediately surrounding urban villages are often similar. But there are exceptions. In Bitter Lake, Lake City, and Greenwood–Phinney Ridge, for example, zoning is predominantly commercial, mixed-use, and multifamily residential where maximum FAR limits are 3.0 or greater.

URBAN FORM

The study area is extensive, encompassing more than 3,000 acres in locations throughout Seattle. Because physical form varies widely across this area, a comprehensive summary is not possible. However, since the proposed action primarily concerns infill development of new buildings in already-developed neighborhoods, documenting common built form conditions provides a baseline for analyzing the proposal's aesthetic impacts. The following examples describe common physical forms that exist in locations the proposal would affect.

Exhibit 3.3–2   Established Single Family Housing Areas

Established single-family areas are common in portions of the study area currently zoned Single Family Residential in urban villages and in proposed urban village expansion areas. Most single-family areas in Seattle have an established pattern of single-family homes, and the ages of the existing housing stock often spans several decades. A typical block often has many homes with an age of 50 years or older. Single-family areas also exhibit a range of home sizes, with many older one- and two-story homes smaller than allowed zoning envelope for new single-family development. Front yards with setbacks of 10–15 feet, often planted with grass or other vegetation, characterize many single-family area.

Exhibit 3.3–3   New Infill Single Family Housing

Existing regulations allow construction of new single-family homes in established single-family areas in the study area. New single-family homes often replace existing older single-family homes, and many exceed the scale of older homes nearby. Compared to older housing stock, modern designs with markedly different architectural characteristics typify many new single-family homes. The City does not require new single-family development to go through Design Review. Infill single-family home development would continue under existing regulations with or without implementation of the proposed action.

Exhibit 3.3–4   Lowrise Multifamily Infill Housing Areas

The study area includes lowrise multifamily areas in urban villages and elsewhere. Due to a mix of existing single-family homes, older multifamily structures, and recently built small multifamily structures characterized these areas, various building heights, scales, and architectural styles characterize these areas. Townhouse development exhibiting neo-craftsman designs was common in the 1990s. Following changes to multifamily development standards in 2010, infill lowrise multifamily housing commonly included townhouses, rowhouses, and small apartment buildings. Recently, development in Lowrise zones has trended towards modern, geometrical styles. Most buildings in these areas are three stories or less.

Exhibit 3.3–5   Mixed Use Commercial Corridors

Most urban villages in the study area include mixed-use commercial corridors, often at the center of an urban village coinciding with a neighborhood business district. Mixed-use commercial corridors also exist along major roadways in urban villages and elsewhere.

Various old and new structures characterize mixed-use commercial corridors. Many structures built in the 1980s and earlier are one-story. Many commercial structures built before the 1950s feature storefronts built to the sidewalk edge, with display windows and pedestrian-oriented entrances.

The study area also includes structures oriented to automobiles with street-facing parking lots and other auto-oriented features. These structures were common in the 1950s through the 1970s.

Development of four- to seven-story buildings has predominated in mixed-use corridors since 1990. These buildings typically include several stories of housing above one story of street-facing commercial uses.

A few corridors in the study area have a consistent pattern of recent mixed-use development for several blocks along both sides of an arterial roadway..

DESIGN REVIEW

Seattle's Design Review Program evaluates the appearance of new buildings and their relationship to adjacent sites. The program reviews most new multifamily, commercial and mixed used development projects in Seattle. Design Review of larger proposed development is conducted primarily by Seattle Department of Construction and Inspections (SDCI) planners with recommendations from neighborhood-based citizen-volunteer boards and public input. Design Review considers issues such as:

- Building and site design, including exterior materials, open space, and landscaping.
- The proposal's relationship to adjacent building, open space, and the street frontage.
- The proposal's relationship to unusual aspects of the site, like views or slopes.
- Pedestrian and vehicular access.

Large proposals required to undergo Design Review must receive a Design Review Board recommendation showing that it meets Design Review guidelines before approval for a Master Use Permit (MUP) and a

Exhibit 3.3–6   Thresholds for Design Review

ZONE	THRESHOLD WHEN DESIGN REVIEW IS REQUIRED
Design Review Board	
Lowrise 3 (LR3)	More than 8 dwelling units
Midrise (MR) & Highrise (HR)	More than 20 dwelling units
Neighborhood Commercial (NC1, NC2, NC3)	More than 4 dwelling units or 4,000 ft^2 of nonresidential gross floor area
Commercial (C1, C2)	More than 4 dwelling units or 12,000 ft^2 of nonresidential gross floor area, located on a lot in an urban center or urban village, or on a lot that abuts or is across a street or alley from a lot zoned single family, or on a lot located in the area bounded by: NE 95th St, NE 145th St, 15th Ave NE, and Lake Washington
All zones Congregate residences and residential uses in which more than 50% of dwelling units are small efficiency dwelling units.	Developments containing 20,000 ft^2 or more of gross floor
Streamlined Administrative Design Review (SDR)	
All Zones	Development with three (3) or more Townhouse units
All Multi-family and Commercial Zones	If removal of an exceptional tree is proposed and the project falls below Design Review thresholds
All zones Congregate residences and residential uses in which more than 50% of dwelling units are small efficiency dwelling units.	Developments of at least 5,000 but less than 12,000 ft^2 of gross floor area
Administrative Design Review (ADR)	
All zones Congregate residences and residential uses in which more than 50% of dwelling units are small efficiency dwelling units.	Developments containing at least 12,000 but less than 20,000 ft^2 of gross floor

Source: BERK, 2017.

building permit. For smaller projects, SDCI planners review the proposal to ensure that it meets the Design Review guidelines before approving a MUP and a building permit. Design Review thus ensures aesthetic considerations are addressed at the time new buildings are permitted.

Currently, different thresholds of development trigger three types of design review, as summarized in Exhibit 3.3–6 above.

Design Review will continue to be required with or without the proposed action. However, SDCI is in the process of amending the Design Review process in response to a recommendation in the 2015 HALA Action Plan. The amendments SDCI is considering would set thresholds for Design Review based on a project's gross floor area, rather than the number

of residential units proposed. Compared to current regulations, the new regulations would result in slightly lower thresholds in Midrise, Highrise, and some Commercial zones and higher thresholds in Lowrise zones. As of this writing, the proposed amendments have not been approved, but it is possible that future planned development in the study area would take place under the revised Design Review process. Currently, new development in portions of the study area proposed for Residential Small Lot, Lowrise 1, or Lowrise 2 zoning in the Action Alternatives would not be required to undergo Design Review unless the development exceeds the thresholds described in Exhibit 3.3–6.

DESIGN GUIDELINES

The Design Review process evaluates new development according to citywide and neighborhood design guidelines. SDCI planners evaluate proposals for consistency with Design Review guidelines adopted by the City Council. The citywide design guidelines apply to all projects subject to Design Review everywhere but Downtown, which has its own guidelines. Many Seattle neighborhoods also have neighborhood design guidelines, which work in tandem with the citywide guidelines. Applicants with projects located in such a neighborhood must consult both citywide and neighborhood design guidelines in the development and review of the project design. If conflicting, neighborhood-specific guidelines supersede citywide guidelines. Neighborhood-specific guidelines identify priority design issues and seek to ensure that new development is compatible with specific local neighborhood character. 14 of the 27 urban villages in the study area have adopted neighborhood design guidelines as shown in Exhibit 3.3–7 at right.

PROTECTED VIEWS

Seattle's Comprehensive Plan and Land Use Code establish policies and regulations for the protection of public views of important landmarks and natural features, views from specific designated viewpoints in the city, and scenic qualities along mapped scenic routes. The following sections provide an overview of relevant policies and regulations.

Comprehensive Plan Goals and Policies

The Land Use Element of the Comprehensive Plan establishes the importance of public view preservation:

Exhibit 3.3–7   Urban Villages with Neighborhood Design Guidelines

Urban Village	Neighborhood Design Guidelines	Urban Village	Neighborhood Design Guidelines
23rd & Union-Jackson	No	Morgan Junction	Yes
Admiral	Yes	North Beacon Hill	Yes
Aurora-Licton Springs	No	North Rainier	No
Ballard	Yes	Northgate	Yes
Bitter Lake Village	No	Othello	Yes
Columbia City	No (guidelines apply in the Historic District)	Rainier Beach	No
Crown Hill	No	Ravenna	No
Eastlake	No	Roosevelt	Yes
First Hill-Capitol Hill	Yes—Capitol Hill, Pike/Pine No—First Hill	South Park	No
Fremont	No	Upper Queen Anne	Yes
Green Lake	Yes	Wallingford	Yes
Greenwood-Phinney Ridge	Yes	West Seattle Junction	Yes
Lake City	Yes	Westwood-Highland Park	No
Madison-Miller	No		

Source: BERK, 2017.

Policy LU 5.15 Address view protection through:

- Zoning that considers views, with special emphasis on shoreline views;
- Development standards that help to reduce impacts on views, including height, bulk, scale, and view corridor provisions, as well as design review guidelines; and
- Environmental policies that protect specified public views, including views of mountains, major bodies of water, designated landmarks, and the Downtown skyline.

The Land Use Element also encourages the protection of views through policies related to building height limits, minimization of building bulk and the creation of access to views and waterways.

Seattle Municipal Code

Seattle Municipal Code (SMC) 25.05.675.P.2 establishes environmental review policies for public view protection, specifically:

> *It is the City's policy to protect public views of significant natural and human-made features: Mount Rainier, the Olympic and Cascade Mountains, the downtown skyline, and major bodies of water including Puget Sound, Lake Washington, Lake Union and the Ship Canal, from public places consisting of… [a lengthy list of] specified viewpoints, parks, scenic routes, and view corridors…*

In Downtown, upper-level building setbacks are required for new buildings to protect view corridors along the following streets (SMC 23.49.024):

- Broad St, Clay St, Vine St, Wall St, Battery St, and Bell St west of 1st Ave
- University St, Seneca St, Spring St, Madison St, and Marion St west of 3rd Ave.

While the Comprehensive Plan and SMC establish the importance of public view corridors and public view preservation, development regulations don't set precise requirements for individual development projects. Protection of public views is deferred to consideration during project reviews and the Design Review process. The Comprehensive Plan and land use code do not establish protection for private views, though the Design Review process may consider impacts to private views.

3.3.2 IMPACTS

This section describes the potential impacts of the three alternatives to aesthetic character in the study area. The Draft EIS recognizes that the evaluation of aesthetic impacts is subjective and can vary depending on an individual's perspectives and preferences. Given the large scale of the study area, impacts to aesthetics and urban design are primarily discussed in a qualitative and generalized manner. Because MHA is a broadly defined, citywide program, this EIS does not provide a detailed analysis of aesthetic impacts at any specific location because the exact form of a given development cannot be accurately predicted; any such analysis would be speculative. Rather, the EIS assesses aesthetic impacts of the proposed action based on anticipated changes to building form, as described in the MHA Urban Design and Neighborhood Character Study (Appendix F). This chapter also illustrates the building types allowed in the study area and potential changes to building form based on the proposed MHA development regulations.

The next subsection discusses the potential impacts common to all alternatives relative to the MHA program elements described in Chapter 2 (i.e., (M), (M1), and (M2) zoning changes, urban village expansions, and changes to development regulations). It includes illustrative models of changes in building form. A subsequent discussion of impacts specific to each alternative addresses the geographic distribution of impacts across the study area and how each alternative would affect the aesthetic character of individual urban villages. The analysis also highlights potential impacts to urban villages according to the displacement risk and access to opportunity categories.

IMPACTS COMMON TO ALL ALTERNATIVES

All the alternatives would result in a general increase in the level of development in the study area compared to existing conditions. The increase may result from expected growth as anticipated in the Comprehensive Plan and/or an additional increment of growth from the proposed zoning changes. As described in Chapter 2, each alternative would distribute capacity for future residential and commercial growth to different areas of the city, though all alternatives would locate most future growth in urban villages. As Alternative 1 No Action would not implement MHA and would not modify existing development regulations, the following discussion pertains only to Alternatives 2 and 3.

Zone Categories

Category 1: Single Family, Residential Small Lot

Category 2: Lowrise 1, Lowrise 2

Category 3: Lowrise 3, Neighborhood Commercial 40, Neighborhood Commercial 55

Category 4: Zones with height limits greater than 55' and equal to or less than 95'

Category 5: Zones with heights greater than 95' (requires individual assessment)

MHA implementation under Alternatives 2 and 3 would increase development capacity in the study area, resulting in an incremental increase in the scale and intensity of development. The increase varies by urban village and by alternative. The effects of this increase on development character; building height, bulk, and scale; and views are discussed below. As described in Chapter 2, MHA implementation would include changes to zoning, development regulations, and the Future Land Use Map:

- **(M), (M1), (M2) Suffix Zoning Changes:** Zoning changes to create additional development capacity under MHA are classified into three categories based on the magnitude of the zoning change:

  » (M) suffix: Applies when a zone changes to a zone in the same category.

  » (M1) suffix: Applies when a zone changes to a zone in the next highest category.

  » (M2) suffix: Applies when a zone changes to a zone two or more categories higher.

- **Urban Village Expansions:** Both action alternatives would expand certain urban village boundaries, as studied in the Seattle 2035 Comprehensive Plan EIS. The expansions would reflect 5- to 10-minute walksheds from frequent transit stations and would vary by alternative.

- **Development Regulation Amendments:** As described in Chapter 2, both action alternatives would amend the Land Use Code to increase maximum height limits and FAR limits for Lowrise (LR), Midrise (MR), and Highrise (HR) Multifamily zones, as well as Commercial (C), Neighborhood Commercial (NC), and Industrial Commercial (IC) zones. Height and FAR limits in the Seattle Mixed (SM) zones in the North Rainier Urban Village and near W Dravus St would also increase. Exhibit 3.3–8 summarizes Land Use Code amendments under the action alternatives, as described in the MHA Urban Design and Neighborhood Character Study and elsewhere in Appendix F.

Exhibit 3.3–8 Land Use Code Amendments, Alternatives 2 and 3

Zone	Land Use Code Amendments (Alternatives 2 and 3)
Lowrise 1 (LR1)	• Remove density limit • Implement family-sized unit requirement. • Increase maximum FAR by 0.1–0.3 depending on building type. • Implement a side façade modulation requirement.
Lowrise 2 (LR2)	• Increase height limit from 30 feet to 40 feet. • Increase maximum FAR by 0.1–0.2 depending on building type. • Require an upper-story setback above 30 feet. • Implement a side façade modulation requirement.
Lowrise 3 (LR3)	• Increase height limit from 40 feet to 50 feet. • Increase maximum FAR by 0.2–0.3 depending on building type. • Require a 12-foot upper-story setback above 40 feet. • Implement a side façade modulation requirement.
Midrise (MR)	• Increase height limit from 60 feet (75 with bonus) to 80 feet. • Increase maximum FAR from 3.2 (4.25 with bonus) to 4.5. • Require upper-story setbacks above 70 feet (15-foot front and 5-foot sides). • Limit building depth to 80 percent of lot depth.
Highrise (HR)	• Increase height limit from 300 feet to 340 feet. • Increase maximum FAR (with bonuses): » For buildings 240 feet tall or less, increase FAR from 13 to 14. » For building taller than 240 feet, increase FAR from 14 to 15.
Neighborhood Commercial (NC)	• NC-30: » Increase height limit from 30 feet to 40 feet. » Increase maximum FAR from 2.5 to 3.0 and remove single-use limit. • NC-40: » Increase height limit from 40 feet to 55 feet. » Increase maximum FAR from 3.25 to 3.75 and remove single-use limit. » Implement upper story setback above 45 feet. » Implement façade modulation requirement. • NC-65: » Increase height limit from 65 feet to 75 feet. » Increase maximum FAR from 4.75 to 5.5 and remove single-use limit. » Implement an upper story setback above 55 feet. » Implement a massing break at 240 feet of width. » Require façade modulation. • NC-85: » Increase height limit from 85 feet to 95 feet. » Increase maximum FAR from 6.0 to 7.0 and remove single use limit. » Implement upper story setback above 75 feet. » Implement a massing break at 240 feet of width. » Require façade modulation. • NC-125: » Increase height limit from 125 feet to 145 feet. » Increase maximum FAR for single uses from 5.0 to 6.0 and for all uses from 6.0 to 7.0. • NC-160: » Increase height limit from 160 feet to 200 feet. » Increase maximum FAR for single uses from 5.0 to 6.5 and for all uses from 7.0 to 8.25

Source: City of Seattle, 2017; BERK, 2017.

Exhibit 3.3–8   Action Alternative Land Use Code Amendments (cont.)

Zone	Land Use Code Amendments (Alternatives 2 and 3)

Seattle Mixed (SM)	North Rainier Zones (SM-NR)
	• SM-NR 65:
	   » Increase height limit from 65 feet to 75 feet.
	   » Increase maximum FAR from 5.0 to 5.25.
	• SM-NR 55/75:
	   » Increase residential height limit (with bonus) from 75 feet to 85 feet.
	• SM-NR 85:
	   » Increase height limit from 85 feet to 95 feet.
	   » Increase maximum FAR from 6.0 to 6.25.
	• SM-NR 125:
	   » Increase height limit from 125 feet to 145 feet.
	   » Increase maximum FAR from 8.0 to 8.25.
	
	Dravus Zone (SM-D)
	• SM-D 40-85:
	   » Increase maximum height (with bonus) from 85 feet to 95 feet.

Source: City of Seattle, 2017; BERK, 2017.

Development, Height, Scale and Character

Under Alternatives 2 and 3, MHA zoning changes would increase maximum height limits and allow larger, more visually prominent building forms and greater development intensity. The aesthetic impact taller and larger buildings can vary substantially depending on an area's existing character, the magnitude of change compared to existing limits, and location relative to other development and sensitive resources, such as parks and public open space.

Since they approximate the magnitude of an MHA zone change, the (M), (M1), and (M2) tiers are useful for describing how the zone changes could potentially affect development character, intensity, and building scale study area.

(M) Tier Zoning Changes

As described in Chapter 2, zones with an (M) suffix would remain in the same zoning category. (M) zoning changes would result in a similar level of development intensity as the current zoning, in most cases allowing one additional story in new buildings compared to what existing regulations allow.

Where (M) zoning changes occur in existing Lowrise 2, Lowrise 3, Commercial, and Neighborhood Commercial zones, a one-story increase in the height limit would apply and FAR increases would enable additional floor area to occupy the additional height. The proposal wouldn't reduce existing setback requirements and design standards in

these areas. Therefore, the primary effect would be taller buildings with the same footprint existing regulations allow.

The height limit would not change for (M) zoning changes in existing Lowrise 1 zones. The proposal would result in only minor increases in the bulk and scale of new buildings. An increase of 0.1–0.2 in the maximum FAR limit could result in some additional floor area compared to existing regulations. But since existing setback and design standards would remain, Lowrise 1 (M) zones would have only minor aesthetic impacts.

In Single Family zones, (M) zoning changes apply only for rezones to Residential Small Lot (RSL). The same maximum height limit would apply to new homes in RSL as existing Single Family zones. However, new homes could be built closer to lot lines and could generally cover 15 percentage points more of a lot's area compared to development under existing regulations.[1] A smaller front yard setback requirement would enable new structures to be closer to the street than the typical pattern in established single-family areas. However, the proposed FAR limit of 0.75 would limit the overall quantity of floor area that could be built on a typical lot to roughly the same amount as could be built under existing regulations for development in Single Family zones. The primary aesthetic impacts would be smaller yards between structures, a reduction in separation from neighboring structures, and a break from the established pattern of front yards on typical streets in single-family areas. Exhibit 3.3–10 shows a conceptual model of RSL infill development associated with an (M) zoning change in an existing single-family neighborhood.

In some higher-intensity zones, height increases associated with (M) zoning changes exceed a single story (30 feet or more). Multi-story height increases occur only where existing regulations already allow tall buildings, thereby making less severe the aesthetic and visual impact of greater height increases. The sections on alternative-specific impacts describe the geographic distribution of these larger height increases.

(M) zoning changes represent the least-impactful tier of MHA rezones, but they still have the potential to affect neighborhood character by allowing taller and larger buildings, changes in building typology, and changes to lot coverage limits and required setbacks. Regardless of change to height limits, the primary aesthetic effect of (M) zoning changes would be increased building bulk and visual prominence due to changes in allowed building forms.

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1 Maximum lot coverage in Single Family zones is 35 percent of lot area for lots 5,000 square feet and larger and 15 percent of lot area plus 1,000 square feet for lots under 5,000 square feet.

(M1) Tier Zoning Changes

As described in Chapter 2, (M1) zoning changes move lands to a zone in the next highest zoning category. This would result in an increase in development intensity beyond what existing development regulations allow. Similar to (M) zoning changes, (M1) zoning changes may include increased maximum height, FAR, and density limits. In most cases, (M1) zoning changes would result in height limit increases of two additional stories compared to what existing regulations allow, in similar types of buildings and similar footprints.

(M1) zoning changes in existing Lowrise 2, Lowrise 3, Commercial, and Neighborhood Commercial zones with 30- and 40-foot height limits would result in increases of about two stories beyond what current zoning allows. FAR limit increases would enable additional floor area to occupy this extra height. In these areas, existing setback requirements and design standards would remain. The primary effect would be taller buildings that occupy the same general footprint as existing regulations allow.

In higher-intensity zones, including the Midrise zone Commercial and Neighborhood Commercial zones with height limits of 65 feet or more, (M1) zoning changes could result in height increases of 35 feet or more. The sections on alternative-specific impacts describe the geographic distribution of these larger height increases.

(M1) zoning changes in existing Lowrise 1 zone would allow buildings two stories taller than existing regulations allow and would likely result in buildings of a different format. Instead of rowhouses and townhouses with individual unit entries, the (M1) capacity increase would likely result in apartment buildings with stacked units or, if new zoning allowed, mixed-use commercial structures. An aesthetic change in the predominant building form for infill development could occur.

In Single Family zones, (M1) zoning changes apply for rezones to Lowrise 1 and Lowrise 2. In these areas, infill development would likely take on a different character and format than the established context. New development would likely be a mix of attached rowhouses and townhouses or small multi-unit apartment structures instead of detached single-family homes. Front and rear setbacks in new development would be smaller than many existing buildings. Yards would be smaller than on many existing single-family lots, and some structures could be closer together than existing regulations allow.

(M1) zoning changes would increase building bulk and visual prominence due to greater height, and in some cases more intense building forms

allowed by the new zoning. These changes would potentially include smaller building setbacks and more visually prominent building forms, which could reduce the amount of direct sunlight reaching ground level in public rights-of-way and other locations near infill development. Exhibit 3.3–12 and Exhibit 3.3–13 show a conceptual model of an (M1) zoning change from Single Family to Lowrise 1 that results in taller buildings, greater lot coverage, and increased visual bulk.

The City could apply additional design standards, such as upper-story setbacks and façade modulation, in areas with (M1) zoning changes to mitigate the effects of increased height and bulk on neighborhood character. Compatibility impacts could specifically arise where (M1) zoning is adjacent to lower-intensity zones. Design standards, such as increased setbacks for properties on the edges of (M1) zones or graduated height limits or setbacks, could soften abrupt transitions between zones. 3.3.3 Mitigation Measures describes these recommendations.

(M2) Tier Zoning Changes

As described in Chapter 2, the (M2) suffix applies to zones that change to a zone two or more categories higher. (M2) zoning changes represent the greatest level of change from what existing development regulations allow. They would result in increased height and bulk, changes to street-level pedestrian experience, and in many cases different building types. Exhibit 3.3–17 shows a conceptual model of infill development in an existing Single Family zone that becomes a Lowrise 3 (M2) zone.

As shown in Exhibit 3.3–14 and Exhibit 3.3–15, the intensity of potential changes to development character in an area with an (M2) zoning change would exceed (M) and (M1) zones. (M2) zones would allow buildings with three or more additional stories compared to what existing regulations allow. (M2) zoning changes would enable new development types that could differ from existing development and could mark a transition to a different neighborhood character where applied. Examples include the allowance of commercial street frontages in areas until now zoned only for residential uses. Where an (M2) zoning change applies in a single-family area, new infill development would differ markedly in scale and form compared to existing buildings. Like (M) and (M1) zones, impacts associated with (M2) zoning changes would be increased building height, greater visual bulk, and reduced access to light and air at ground level. (M2) zones occur in limited locations in the action alternatives. The sections on alternative-specific impacts discuss their geographic distribution.

Single Family Zoning (No Action)

Similar to (M1) zoning changes, measures to mitigate effects of increase height and bulk on neighborhood character and the pedestrian environment in (M2) zones could include revised design standards, such as upper-story setbacks and façade and roof form modulation. Compatibility issues could particularly occur where (M2) zoning is adjacent to lower-intensity zones. Design standards, such as increased setbacks for properties on the edges of (M2) zones or graduated height limits, could address conflicts in building scale where (M2) zones contrast with and transition to lower-intensity development. 3.3.3 Mitigation Measures describes these recommendations.

In Exhibit 3.3–9 through Exhibit 3.3–21,white buildings indicate existing context structures built under current zoning or regulations predating current zoning. Buildings in blue are new single-family structures built under existing regulations for Single Family zones. Buildings in gold are hypothetical buildings built under the proposed regulations.

Exhibit 3.3–9, Exhibit 3.3–10, and Exhibit 3.3–11 show a scenario in an urban village where existing Single Family zoning becomes Residential Small Lot (RSL).

The graphics show a No Action scenario of infill single-family development over a 20-year period (Exhibit 3.3–9). This compares with a scenario of infill development over a 20-year period with RSL housing types (Exhibit 3.3–10) in a distributed pattern. The third image (Exhibit 3.3–11) shows a pattern where a high concentration of infill development of RSL housing types is added in a single area in the block.

Exhibit 3.3–10
Infill Development
of Residential Small
Lot (RSL) Housing in
Single Family Context,
(M) Zoning Change

Source: City of Seattle, 2017.

Residential Small Lot (M)

Exhibit 3.3–11
Infill Development
of Residential Small
Lot (RSL) Housing
in Single Family
Context, (M) Zoning
Change—Concentrated
Development Pattern

Source: City of Seattle, 2017.

Residential Small Lot (M)

Relevant urban villages include:

All urban villages with
proposed RSL zoning.

As illustrated in Exhibit 3.3–9 through Exhibit 3.3–11, the (M) Tier infill development in this example introduces building forms with moderately greater mass and bulk than the existing development pattern, with the same height limit between the No Action and Action alternatives. The result is a slightly more urban character with buildings located closer to the street and slightly less space between pedestrians and the RSL homes.

Exhibit 3.3–12 and Exhibit 3.3–13 show a scenario in an urban village with existing Single Family zoning that becomes Lowrise 1 (M1) on one side of the street. The other side is an existing Lowrise 2 zone that receives a standard (M) zoning change and becomes Lowrise 2 (M) with the proposed Land Use Code regulations.

The images illustrate the proposed Lowrise 1 (M1) zoning in an existing single-family context and the relationship of proposed Lowrise 2 (M) zoning to existing single-family structures and infill Lowrise 1 structures across the street.

Aesthetic impacts include the smaller setbacks at the street edge in the Lowrise (M1) zone. Greater lot coverage and smaller side and rear setbacks result in some bulk and scale impacts where infill Lowrise 1 structures are adjacent to existing single-family homes. Impacts could include reduction in privacy for some property owners. Although height limits do not change, aesthetic impacts of the (M1) increase are noticeable in areas zoned for low-intensity uses, such as existing single-family zones.

In the Lowrise 2 (M) example seen in Exhibit 3.3–12 and Exhibit 3.3–13, the primary aesthetic impact is the presence of one additional story compared to existing regulations. Here, the height limit increases from 30 feet to 40 feet, allowing four-story rather than three-story buildings. An upper-level setback, proposed as part of the Lowrise 2 zone changes, mitigates the appearance at street level of additional bulk.

Application of design standards, such as upper-level setbacks, side façade modulation requirements, and privacy standards, in Lowrise zones with (M) and (M1) suffixes would mitigate the effects of increased height and bulk on neighborhood character and the pedestrian environment. 3.3.3 Mitigation Measures describes these recommendations.

Exhibit 3.3–12
Lowrise 1 (M1) and
Lowrise 2 (M) Infill
Development

Source: City of Seattle, 2017.

Lowrise 1 (M1)

Lowrise 2 (M)

Exhibit 3.3–13
Lowrise 1 (M1) and
Lowrise 2 (M) Infill
Development

Source: City of Seattle, 2017.

Lowrise 1 (M1)

Lowrise 2 (M)

Relevant urban villages include:

Columbia City, Fremont, North
Rainier, 23rd & Union–Jackson,
Morgan Junction, and Wallingford.

Exhibit 3.3–14 and Exhibit 3.3–15 show a scenario in an urban village with existing Single Family zoning. On one side of the street the zoning is changed to Lowrise 3 with an (M2) suffix. Zoning on the other side of the street zoning becomes Lowrise 2 with an (M1) suffix.

Exhibit 3.3–14 shows infill development over a 20-year period with lowrise housing types in a distributed pattern. Exhibit 3.3–15 shows a high concentration of lowrise infill development.

In the (M2) area, height limits increase to 50 feet, allowing buildings two stories taller than the existing single-family context. Apartment buildings with stacked units and single building entries, as opposed to detached single-family homes, would mark a change in character from the existing built form. Smaller front and rear setbacks would reduce the amount of yard space compared to development under existing single-family regulations. The street would become more urban in character as the neighborhood experiences new infill buildings.

Application of design standards, such as upper-level setbacks, side façade modulation requirements, and privacy standards, in Lowrise zones with (M) and (M1) suffixes would mitigate the effects of increased height and bulk on neighborhood character and the pedestrian environment. 3.3.3 Mitigation Measures describes these recommendations.

Exhibit 3.3–14
Lowrise 2 (M1) and
Lowrise 3 (M2) Infill
Development

Source: City of Seattle, 2017.

Lowrise 2 (M1)

Lowrise 3 (M2)

Exhibit 3.3–15
Lowrise 2 (M1) and
Lowrise 3 (M2) Infill
Development—
Concentrated
Development Pattern

Source: City of Seattle, 2017.

Lowrise 2 (M1)

Lowrise 3 (M2)

Relevant urban villages include:

Columbia City, Crown Hill, Roosevelt,
North Beacon Hill, Othello, Rainier
Beach, West Seattle Junction,
Admiral, Aurora–Licton Springs,
North Rainier, 23rd & Union–Jackson,
Madison–Miller, Morgan Junction,
Wallingford, Westwood–Highland Park.

Exhibit 3.3–16 and Exhibit 3.3–17 display an area adjacent to a public open space in an urban village with existing Single Family zoning that becomes Lowrise 2 (M1). The graphics show a No Action scenario of infill single-family development over a 20-year period. This compares to a scenario of infill development over a 20-year period with Lowrise 2 housing types. The illustration shows relationships of new infill development to the open space including the potential extent of shadowing. The scenario depicts a 5:00 p.m. condition on an equinox for the purposes of evaluating the extent of shadows across the right-of-way.

The impacts of the proposed Lowrise 2 (M1) change are the potential for a building with one more story than existing regulations allow and buildings located closer to the front lot line compared to existing single-family homes. Shadows from buildings reach the open space's edge under the No Action and Action scenarios. Some increase in the amount of shadowing is evident. However, due to the width of the right-of-way the longer shadows extend only a short distance into the public space.

A street-facing upper-story setback aids in reducing the amount of additional shadowing of the adjacent open space. 3.3.3 Mitigation Measures describes these recommendations.

Exhibit 3.3–16
Single Family Infill
Development Adjacent
to a Public Open
Space, No Action

Source: City of Seattle, 2017.

Single Family Zoning (No Action)　　　*Public Open Space*

Exhibit 3.3–17
Lowrise 2 (M1) Infill
Development Adjacent
to a Public Open Space

Source: City of Seattle, 2017.

Lowrise 2 (M1)　　　*Public Open Space*

Relevant urban villages include:

Crown Hill, Roosevelt, North
Beacon Hill, Othello, Rainier Beach,
Admiral, Aurora–Licton Springs,
North Rainier, 23rd & Union–
Jackson, Madison–Miller, Morgan
Junction, South Park, Wallingford.

Exhibit 3.3–18 and Exhibit 3.3–19 illustrate a scenario of existing Neighborhood Commercial 40 zoning with a proposed zoning change to NC-55 with an (M) MHA tier capacity increase. The scenario depicts a transition, as the rear of the neighborhood commercial zone, across the street, is an area of existing single family zoned land that has a proposed zoning change to a Lowrise 1 zone with an (M1) MHA tier. Exhibit 3.3–18 shows a No Action scenario for comparison.

This scenario shows the scale relationships of a neighborhood commercial area along an arterial roadway transitioning to a residential area a block off of the arterial roadway. The No Action image shows the relationship of NC-40 existing development to the adjacent single family zoned neighborhood under existing regulations. The other images show the relationship of infill development under proposed NC-55 zoning to the residential neighborhood with proposed new LR1 zoning. Some new infill development under the proposed LR1 zone is shown over the 20-year period alongside single family homes that remain in place.

The primary impact of the (M) Tier capacity increase to NC-55 is the increased height, which allows for the presence of a 5 story building across the street from the residential zone. The additional story contributes to greater visual bulk and has some reduction to the amount of light and air at ground level.

Targeted application of design standards, such as upper-story setbacks and façade modulation (included in Exhibit 3.3–19), may be necessary in transition areas to mitigate the effects of increased height and bulk on neighborhood character and the pedestrian environment.

Exhibit 3.3–18
Transition Area,
No Action

Source: City of Seattle, 2017.

Single Family Zoning (No Action)

NC-40 (No Action)

Exhibit 3.3–19
Transition Area,
Lowrise 1 (M1)
and Neighborhood
Commercial (M)
Infill Development

Source: City of Seattle, 2017.

Lowrise 1 (M1)

NC-55 (M)

Relevant urban villages are:

Areas with transitions between
Neighborhood Commercial
zones on mixed use corridors, to
residential areas. These include:
Upper Queen Anne, North Beacon
Hill, Wallingford, Morgan Junction,
West Seattle Junction, Crown
Hill, Greenwood Phinney-Ridge,
and Westwood-Highland Park.

Exhibit 3.3–20 and Exhibit 3.3–21 show a mixed-use corridor with existing Neighborhood Commercial 40 zoning along an arterial road. Exhibit 3.3–20 depicts No Action. Exhibit 3.3–21 illustrates an (M) zoning change on one side of the street to Neighborhood Commercial 55. The other side becomes Neighborhood Commercial 75 with an (M1) suffix. Both scenarios depict potential infill development under the applicable zoning regulations over a 20-year period.

The images display scale relationships of infill development under proposed regulations compared to both existing structures and development that could occur under existing regulations.

The increased building height of both the (M) and (M1) zoning changes would increase visual bulk and reduce access to light and air at street level. Under the action scenario, the street has a more urban character, with a continuous street wall five to six stories tall. From the perspective of pedestrians in the public realm, this results in a different experience and a greater sense of enclosure by buildings.

In both the (M) and (M1) zones, the upper-story setbacks mitigate the appearance of bulk to the building's upper stories as viewed from street level. Façade modulation requirements add variety to the buildings' façades. These design standards may be necessary to mitigate the effects of increased height and bulk on neighborhood character and the pedestrian environment in mixed-use corridors and neighborhood business districts.

Exhibit 3.3–20
Neighborhood Commercial Zoning, No Action

Source: City of Seattle, 2017.

NC-40 (No Action)
NC-40 (No Action)

Exhibit 3.3–21
Neighborhood Commercial (M) and (M1) Infill Development

Source: City of Seattle, 2017.

NC-75 (M1)
NC-55 (M)

Relevant urban villages include:

All urban villages with NC-40 or NC-65 zoning.

Urban Village Expansion Areas

The Seattle 2035 Comprehensive Plan EIS (May 2016) analyzed the potential aesthetic and urban design impacts associated with expanding the boundaries of certain urban villages to reflect walksheds around high-frequency transit stations, though no urban village expansions were adopted as part of the Comprehensive Plan update. As described in the Comprehensive Plan EIS, most development in the proposed urban village expansion areas is a much lower-intensity than in the urban villages themselves. Much of these peripheral areas is zoned Single Family, and building height limits are generally lower than inside urban villages.

Because expansion areas are at the edges of urban villages, they would likely function as transitional areas, forming a buffer between the most intense development in the urban village and the low-intensity neighborhoods surrounding it. However, expanding urban villages would, over time, lead to the conversion of existing development to higher-intensity uses, development of taller buildings, and establishment of a more urban character in the expansion areas, compared with existing conditions. This conversion would include the gradual introduction of taller, more prominent buildings with potentially greater site coverage than existing development. Since development tends to be incremental, temporary conflicts of height and scale may arise between older and newer buildings as properties convert to more intense uses at different times.

The location and extent of urban village expansions would vary by alternative, and impacts associated with specific urban village expansion areas are described in the sections on alternatives-specific impacts.

Development Regulation Amendments

As described in Chapter 2 and summarized in Exhibit 3.3–8, both action alternatives would amend the Land Use Code to create additional capacity in Lowrise, Midrise, Highrise, Neighborhood Commercial, Commercial, and Seattle Mixed zones. These capacity increases would result from a combination of increased height, FAR, and density limits. Under Alternative 2, the amended development regulations would apply to approximately 2,286 acres of the study area, slightly less than the Alternative 3, which would apply the amended development regulations to approximately 2,416 acres.

In both action alternatives, these Land Use Code amendments would increase building height and bulk beyond current conditions, which could

alter the character of development in large portions of the study area. The aesthetic impacts of these amendments are described in the description of the (M), (M1), and (M2) zoning changes and in the exhibits above.

View Obstruction and Shading Effects

Under both action alternatives, MHA implementation would result in localized increases in building height and bulk and increased development intensity relative to existing conditions in the study area. Increased height and bulk can interfere with protected view corridors and scenic routes and with private views. Private views are not protected to the same extent as public view corridors, but the Design Review process can consider impacts to them.

Increased building height and bulk in the study area can also increase shading effects on public spaces and private property. Large height limit increases have the potential to generate significant shading effects on the street-level pedestrian environment, especially if several buildings redevelop along a particular street. Taller buildings in transition areas can also potentially shade shorter buildings and properties in adjacent lower-intensity zones. View and shading impacts associated with height increases vary in location under each alternative and are further discussed in the alternative-specific impacts sections.

IMPACTS OF ALTERNATIVE 1 NO ACTION

Under Alternative 1 No Action, MHA would not be implemented. Residential and commercial development consistent with the adopted comprehensive plan would occur over the 20-year planning period, leading to increased development compared to existing conditions, as analyzed in the Seattle 2035 Comprehensive Plan Final EIS. No zoning changes or urban village expansions associated with MHA would occur, and Alternative 1 would not result in any significant aesthetic impacts beyond those analyzed in the Comprehensive Plan EIS.

IMPACTS OF ALTERNATIVE 2

As described in Chapter 2, Alternative 2 would implement MHA, directing most future growth to urban villages, primarily to areas currently zoned for commercial and multifamily development. Alternative 2 would also include expand certain urban village to reflect a 10-minute walkshed around high-frequent transit nodes.

Development Character, Height, and Scale

Impacts to development character, height, and scale under Alternative 2 would resemble those described under Impacts Common to All Alternatives. The following sections describe the distribution of those impacts across the Study Area under Alternative 2.

(M), (M1), and (M2) Zoning Changes

Exhibit 3.3–22 shows the extent and distribution of (M), (M1), and (M2) zoning changes in the study area under Alternative 2. As described in Chapter 2, (M) zoning changes cover the largest portion of the study area: 73 percent of all lands where MHA would be implemented. (M1) and (M2) zoning are concentrated in localized areas. In Alternative 2, 23 percent of lands proposed for MHA have (M1) zoning and only four percent (M2). As described under Impacts Common to All Alternatives, (M1) and (M2) zoning changes generally represent greater changes to building character and bulk than (M) zoning changes due to changes in allowed building types.

(M2) Zoning Changes. Under Alternative 2 the largest areas of (M2) zoning occur in several urban villages in southeast Seattle near existing light rail stations, near the future light rail station between North Rainier and 23rd & Union–Jackson, and near future light rail stations in Roosevelt and Ballard. The largest single area of (M2) zoning would be in the eastern edge of the Othello Urban Village, which roughly corresponds to the proposed urban village expansion area, which is illustrated in Exhibit 2–17.

In Alternative 2 many of the larger areas of (M2) increases, are in areas with high displacement risk and low access to opportunity. Therefore, compared to Alternative 3, more of the localized aesthetic impacts associated with (M2) could be seen in areas with high displacement risk and low access to opportunity. Fewer areas of localized (M2) aesthetic impacts and changes to character would occur in areas with low displacement risk and high access to opportunity. (See also Chapter 2).

(M1) Zoning Changes. Under Alternative 2 several of the largest areas of (M1) zoning are located in urban villages near the center of the city in First Hill–Capitol Hill, Madison–Miller, and between North Rainier and 23rd & Union–Jackson. The largest single area of (M1) is in north Capitol Hill, where a large swath of land currently zoned Lowrise 3 would be changed to Midrise, enabling a roughly three-story height increase in a neighborhood already predominantly characterized by multifamily housing. Southeast and southwest Seattle urban villages would have

sizeable areas of (M1) zoning, including Westwood–Highland Park, South Park, Rainier Beach, Othello, and Columbia City, and West Seattle Junction.

In Alternative 2, many larger areas of (M1) zoning also exists where displacement risk is high and access to opportunity is low. Therefore, compared to Alternative 3, more of the localized aesthetic impacts associated with (M1) zoning changes would occur in areas with high displacement risk and low access to opportunity areas. Fewer areas of the (M1) aesthetic impacts and changes to character would be present in areas with low displacement risk and high access to opportunity.

Height Increases

Increases in the maximum height limit are another way to evaluate the degree of aesthetic impact that could occur. Exhibit 3.3–23 shows the distribution of height increases in the study area due to zoning changes and Land Use Code amendments under Alternative 2. A few localized areas would have large increases in allowed building height of 65 feet or more. The largest height increases under Alternative 2 would occur in Lake City and Northgate. As shown in Exhibit 3.3–21, Alternative 2 would include an 80-foot height increase in Lake City from Neighborhood Commercial 65 to Neighborhood Commercial 145. The location is characterized by existing automobile dealerships on several large parcels. In Northgate, Alternative 2 would include a 115-foot height increase from Neighborhood Commercial 125 to Neighborhood Commercial 240 directly adjacent to the future light rail station on the site of the King County transit center, which has potential for future transit oriented development. Both areas are already heavily urbanized, and surrounding zoning already allows heights in the range of 65–85 feet (Lake City) and 85–125 feet (Northgate). However, the magnitude of these proposed height increases would result in development with high visual prominence that would be much taller than existing buildings. As a designated urban center, Northgate is appropriate for the most intensive development.

First Hill–Capitol Hill also includes height increases greater than 30 feet, specifically the previously mentioned (M2) area of north Capitol Hill and the Highrise zone in First Hill, where existing the existing height limit of 300 feet would increase to 340 feet. Since the Highrise zone already allows for tall structures, allowing 40 additional feet would have minor bulk and scale impacts compared to this magnitude of height increase in other zones.

Bitter Lake
Village

Lake
City

Aurora
Licton Springs

Northgate

Crown
Hill

Green
Lake

Roosevelt

Greenwood
Phinney Ridge

Ballard

Ravenna

Wallingford

University
Community

Fremont

Eastlake

Upper
Queen Anne

Madison
Miller

Uptown

S. Lake
Union

First Hill,
Capitol Hill

Downtown

23rd & Union
Jackson

Admiral

N. Beacon
Hill

North
Rainier

Columbia
City

West Seattle
Junction

Morgan
Junction

Othello

Westwood
Highland Park

South
Park

Rainier
Beach

Exhibit 3.3–22
Locations of (M), (M1), and (M2)
Zoning Changes—Alternative 2

☐ Potential Expansion
Areas, Alternative 2

**Urban Centers/Villages,
Displacement Risk and
Access to Opportunity**

☐ High Risk, Low Access

☐ High Risk, High Access

☐ Low Risk, High Access

☐ Low Risk, Low Access

☐ Outside MHA Study Area

MHA Tier

▨ (M)

▨ (M1)

▨ (M2)

Source: City of Seattle, 2017; BERK, 2017.

80' INCREASE

115' INCREASE
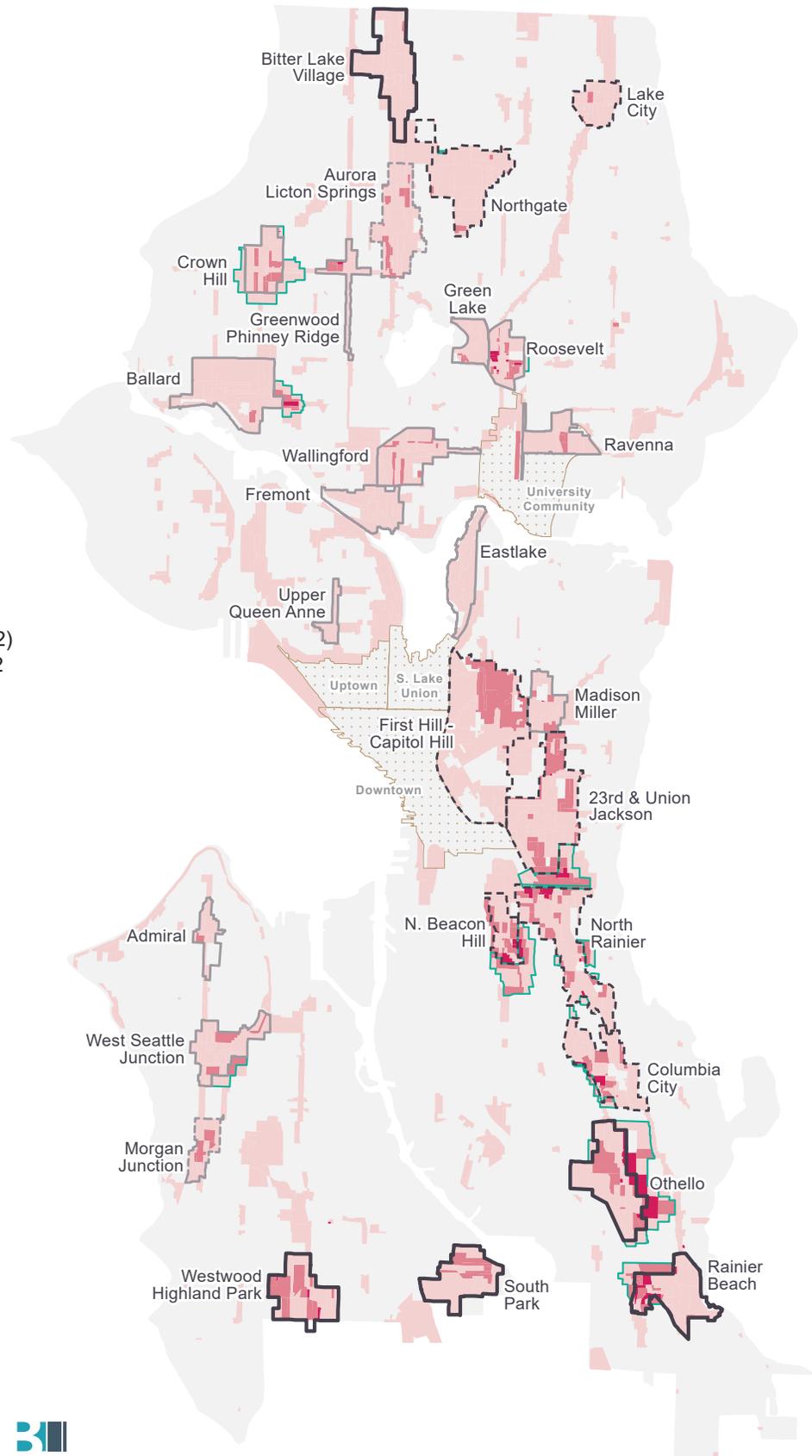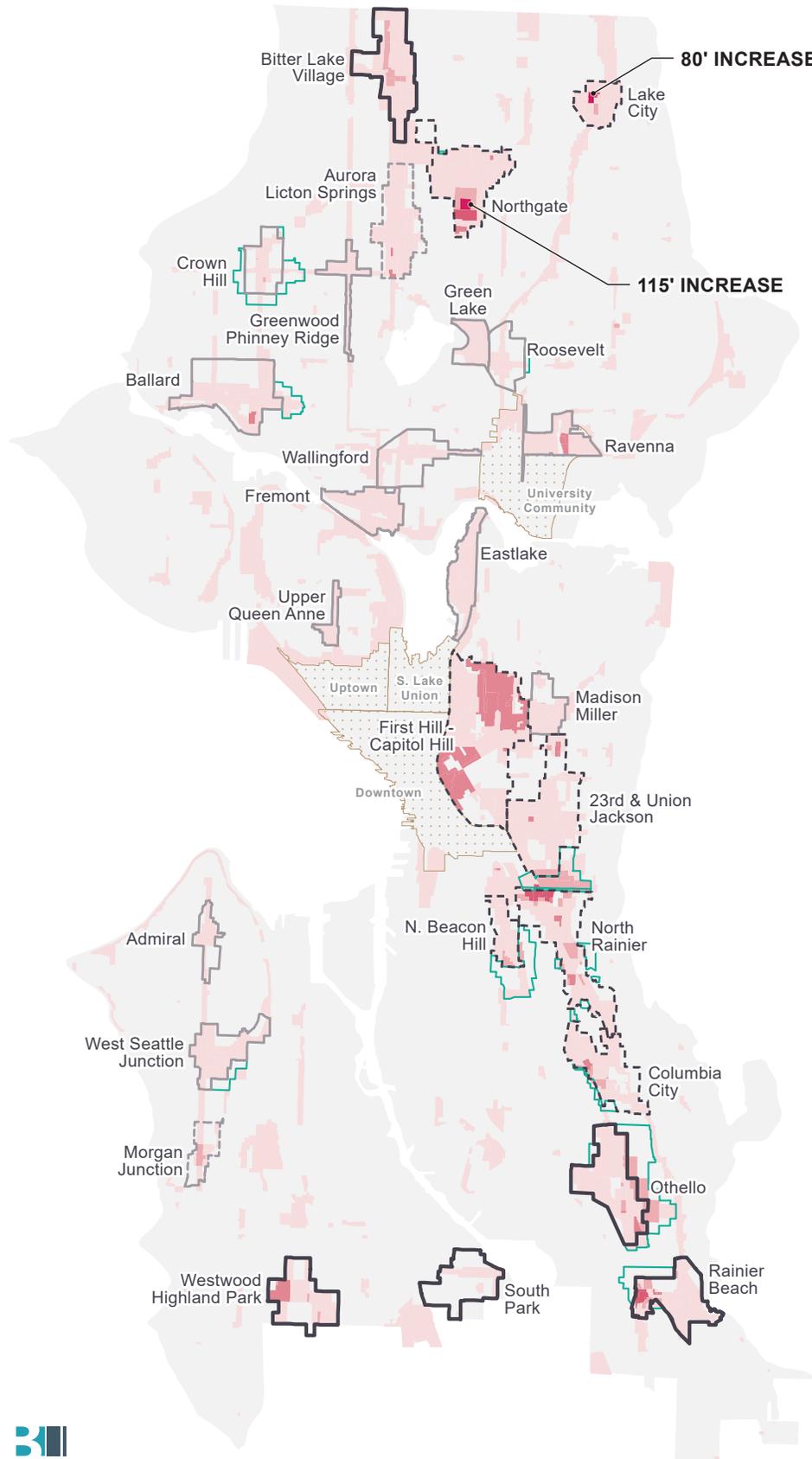
Exhibit 3.3–23
MHA Height Limit
Changes—Alternative 2

Potential Expansion
Areas, Alternative 2

**Urban Centers/Villages,
Displacement Risk and
Access to Opportunity**

High Risk, Low Access

High Risk, High Access

Low Risk, High Access

Low Risk, Low Access

Outside MHA Study Area

**Change in Maximum
Buildable Height**

5 to 15 ft

16 to 30 ft

31 to 45 ft

46 to 65 ft

66 ft or more

*Source: City of Seattle, 2017; BERK,
2017.*

Other areas with height increases of three or more stories include North Rainier near the future light rail station, Westwood–Highland Park on the site of the Westwood Village shopping mall, and Rainier Beach adjacent to the light rail station.

Compared to Alternative 3, Alternative 2 distributes the greatest building height increases primarily to urban villages that are already densely developed, such as First Hill–Capitol Hill, Lake City, and Northgate, though height increases beyond 30 feet would also occur in small areas of North Rainier and Rainier Beach. Accordingly, Alternative 2 includes height increases of greater magnitude than Alternative 3, but they occur in a smaller area.

Concentrating large height increases in this small number of locations limits the geographic extent of impacts related to the presence of taller buildings, but results in large localized changes in height, bulk, and scale. Applying design standards and other mitigation measures could limit the effects of these height increases. In areas with very large height increases, such as Northgate and Lake City, the Design Review process can mitigate potential scale and aesthetic impacts on surrounding development.

Urban Village Expansion Areas

As described under Impacts Common to All Alternatives, proposed expansion of urban villages would introduce increased height and bulk as lower-intensity development transitions to the higher-intensity building types typical of urban villages. Alternative 2 features larger expansions of certain urban villages than Alternative 3, thereby extending these aesthetic impacts across a larger area. Some of the largest urban village expansion areas are Crown Hill, North Rainier, North Beacon Hill, and Othello. Othello, North Beacon Hill, and North Rainier are all classified as having a high risk of displacement; larger urban village expansions in these locations could potentially accelerate changes in land use and building type.

View Obstruction and Shading Effects

As described above, Alternative 2 distributes the greatest building height increases to densely developed urban villages, where development intensity and building height are already high. These height increases are greater in magnitude than Alternative 3, occur in a smaller area, and are more likely to result in significant localized shading of adjacent properties or obstruction of protected views. The precise nature and degree of

potential impacts in these locations would depend on site-specific site characteristics and the designs of individual construction projects. As applicable, project-level design review during the permit application process would include evaluation of views and shading impacts, and provide an opportunity to define site-specific mitigation.

IMPACTS OF ALTERNATIVE 3

Like Alternative 2, Alternative 3 would implement MHA, directing most future growth to urban villages, primarily to areas currently zoned for commercial and multifamily development. Alternative 3 also includes explicit consideration of each urban village's classification in the displacement risk and access to opportunity typology. Alternative 3 would expand certain urban villages to approximate a mix of 10-minute and 5-minute walksheds from frequent transit service nodes, with the extent expansion area based on the urban village's classification in the displacement risk and access to opportunity typology.

Development Character, Height, and Scale

Impacts to development character, height, and scale under Alternative 3 would resemble those described under Impacts Common to All Alternatives. The following sections describe the distribution of those impacts across the study area under Alternative 3.

(M), (M1), and (M2) Zoning Changes

Exhibit 3.3–24 shows the extent and distribution of (M), (M1), and (M2) Tier rezones in the study area under Alternative 3. As described in Chapter 2, (M) zoning changes cover the largest portion of the study area: 77 percent of all lands proposed for MHA. (M1) and (M2) Tier rezones are concentrated in localized areas. In Alternative 2, 20 percent of lands proposed for MHA have (M1) zoning changes and only three percent (M2). As described under Impacts Common to All Alternatives, (M1) and (M2) zoning changes generally represent greater changes to building character, bulk and scale than (M) zoning changes due to changes in allowed building types.

(M2) Zoning Changes. In Alternative 3 (M2) zoning changes are concentrated in Fremont, Wallingford, Ballard, Roosevelt, Crown Hill, West Seattle Junction, Admiral, and Morgan Junction. The largest contiguous areas of (M2) zoning is in Roosevelt, Wallingford, and Fremont. (M2) zoning in Wallingford and Fremont is primarily between Aurora Ave N and Stone Way N, along streets including Midvale Ave

N and Woodland Park Ave N. A mix of existing single-family and small multifamily buildings characterize these areas, and MHA implementation could result in construction of larger multifamily structures and different buildings types. Morgan Junction would also have this condition under Alternative 3.

In Alternative 3 many of the larger areas of (M2) zoning occur where displacement risk is low and access to opportunity is high. Therefore, compared to Alternative 2, more of the localized aesthetic impacts associated with (M2) zoning changes would occur in areas with low displacement risk and high access to opportunity. Fewer areas of localized (M2) aesthetic impacts and changes to character would occur in areas with high displacement risk and low access to opportunity areas, particularly the urban villages in southeast Seattle. (See also Chapter 2).

(M1) Zoning Changes. Under Alternative 3, several of the largest areas of (M1) zoning changes are in urban villages north of the Ship Canal, including Crown Hill, Wallingford, Fremont, Ballard, Roosevelt, Green Lake, and in West Seattle Junction, Morgan Junction, and Admiral in West Seattle. Many (M1) areas are instances Single Family zones in urban villages or expansion areas that would change to allow multifamily housing. In Alternative 3 many of the larger areas of (M1) increases are also in areas with low displacement risk and high access to opportunity. Therefore, compared to Alternative 2, more of the localized aesthetic impacts associated with (M1) would occur where displacement risk is low and access to opportunity is high. Fewer (M1) aesthetic impacts and changes to character would occur in areas with high displacement risk and low opportunity areas. (See also Chapter 2).

Alternative 3 also features substantial (M1) and (M2) areas in the study area's two urban villages with low displacement risk and low access to opportunity: Morgan Junction and Aurora–Licton Springs. These urban villages would experience greater aesthetic impacts under Alternative 3 compared to Alternative 2.

Height Increases

Exhibit 3.3–25 shows the distribution of height increases in the study area due to zoning changes and Land Use Code amendments under Alternative 3. The greatest increases in allowed building height would occur in Crown Hill, Aurora–Licton Springs, Green Lake, Fremont, Eastlake, First Hill–Capitol Hill, Admiral, and Morgan Junction. Overall, height limit increases would be lower under Alternative 3 than under

Alternative 2; the greatest height increase under Alternative 3 would be 65 feet, compared with 115 feet under Alternative 2.

In contrast to Alternative 2, Alternative 3 does not include major building height increases in several localized areas. Also unlike Alternative 2, the urban villages receiving the greatest height increases have generally lower risk of displacement than those affected under Alternative 2. Crown Hill, Green Lake, Fremont, Eastlake, and Admiral are classified as having low displacement risk and high access to opportunity; First Hill–Capitol Hill is classified as an area with high displacement risk and high access to opportunity; and Aurora–Licton Springs has low displacement risk and low access to opportunity.

Urban Village Expansion Areas

As described under Impacts Common to All Alternatives, expansion of urban villages would introduce increased height and bulk and different building forms in single family areas, as lower-intensity development transitions to higher-intensity building types typical of urban villages. Alternative 3 would expand certain urban villages to reflect a mix of 5- and 10-minute walksheds around frequent transit. As described in Chapter 2, urban villages classified as having a high risk of displacement would have expansion areas consistent with 5-minute walksheds from transit nodes; urban villages classified as having low risk of displacement would have full 10-minute walkshed expansion areas. As a result, Alternative 3 would extend the aesthetic impacts of urban village expansion to a smaller area than Alternative 2.

View Obstruction and Shading Effects

As described above, Alternative 3 distributes moderate building height increases across the urban villages of the study area, and avoids a few very large height increases in the concentrated areas as seen in Alternative 2. The precise nature and degree of potential impacts in locations with height increases would depend on specific site characteristics and the designs of individual construction projects. As applicable, project-level design review during the permit application process would include evaluations of views and shading impacts and provide an opportunity to define site-specific mitigation.

Exhibit 3.3–24
Locations of (M), (M1), and (M2)
Zoning Changes —Alternative 3

Potential Expansion
Areas, Alternative 3

**Urban Centers/Villages,
Displacement Risk and
Access to Opportunity**

High Risk, Low Access

High Risk, High Access

Low Risk, High Access

Low Risk, Low Access

Outside MHA Study Area

MHA Tier

(M)

(M1)

(M2)

Source: City of Seattle, 2017; BERK, 2017.
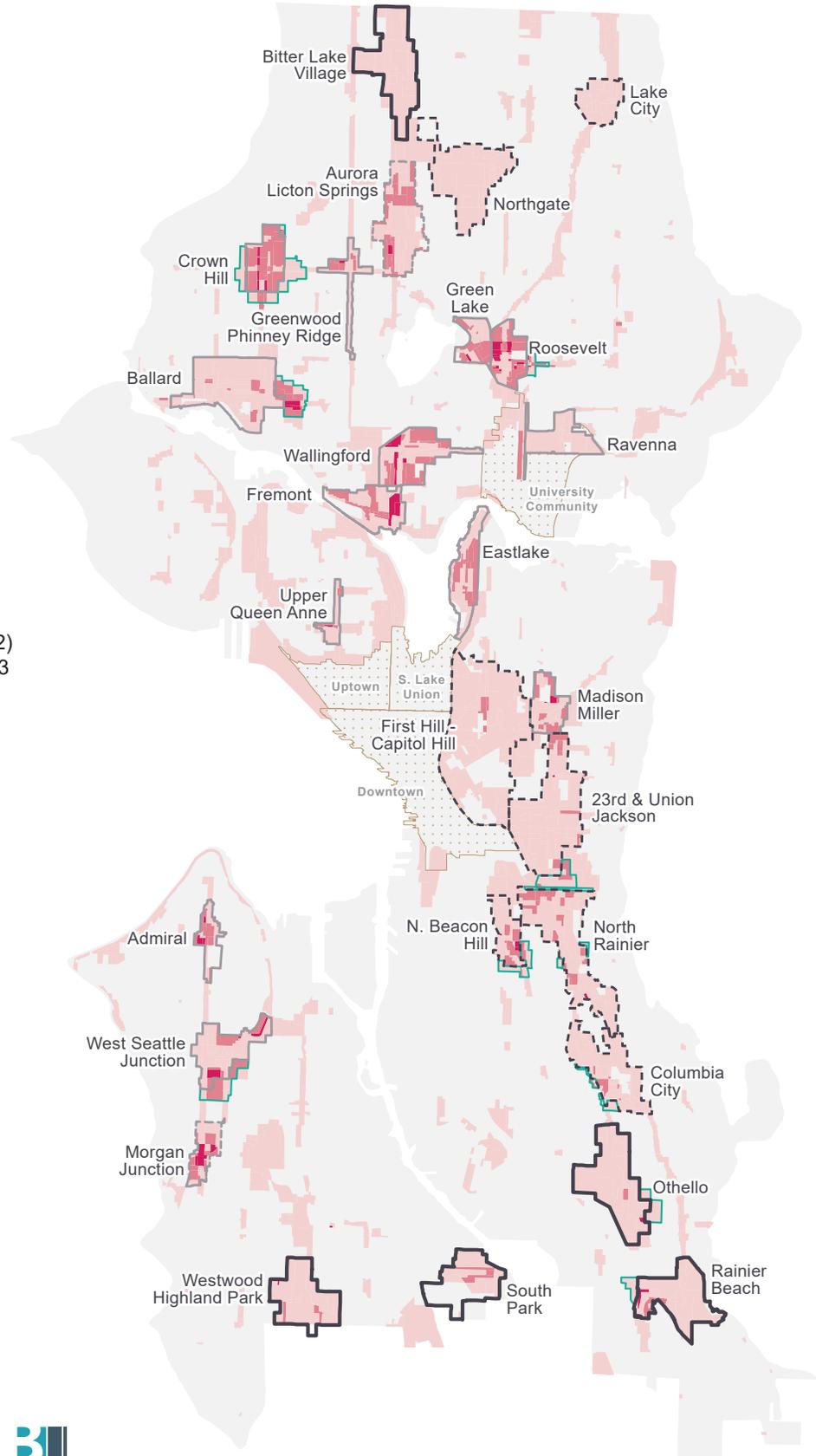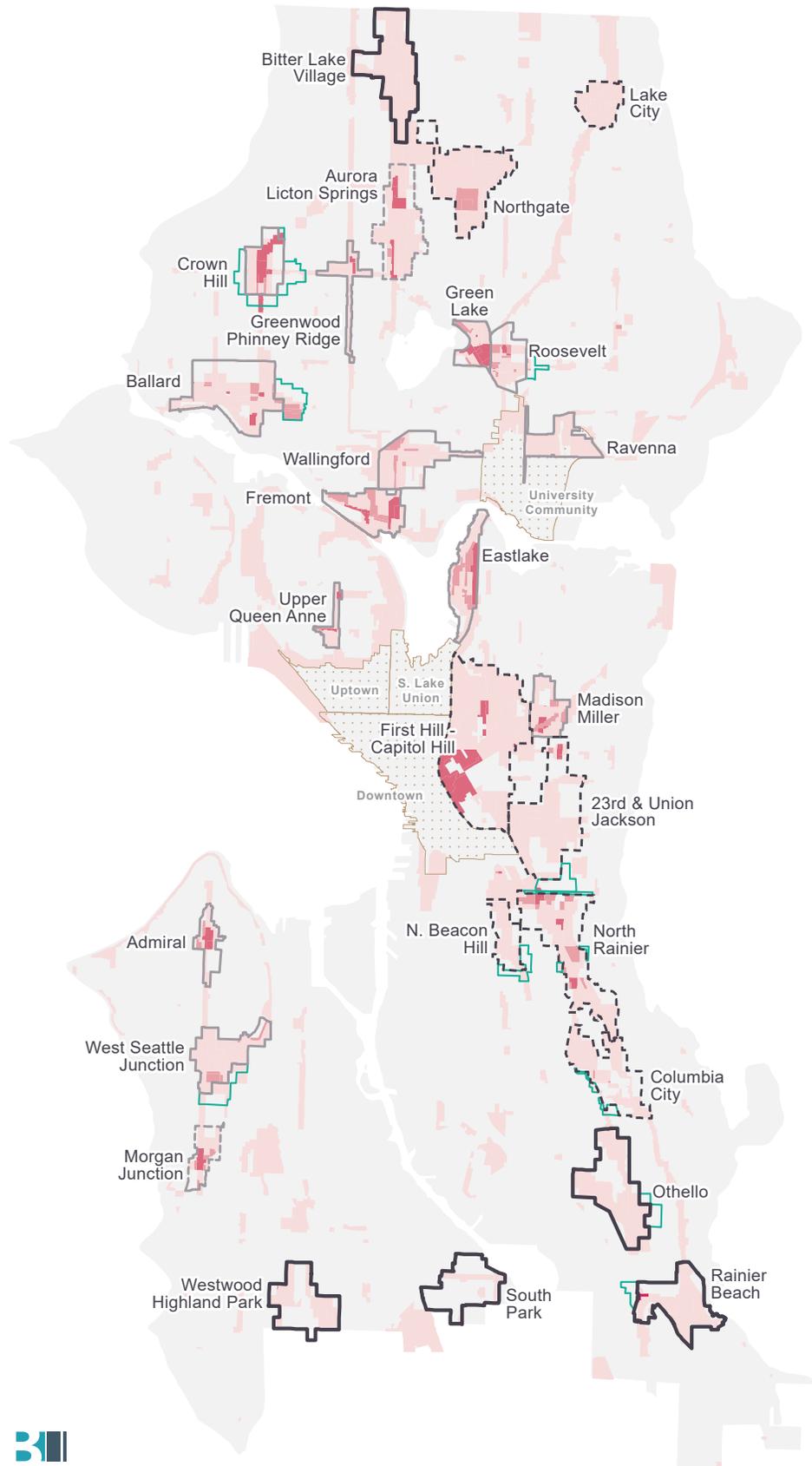
Exhibit 3.3–25
MHA Height Limit
Changes—Alternative 3

Potential Expansion
Areas, Alternative 3

**Urban Centers/Villages,
Displacement Risk and
Access to Opportunity**

High Risk, Low Access

High Risk, High Access

Low Risk, High Access

Low Risk, Low Access

Outside MHA Study Area

**Change in Maximum
Buildable Height**

5 to 15 ft

16 to 30 ft

31 to 45 ft

46 to 65 ft

*Source: City of Seattle, 2017; BERK,
2017.*

3.3.3 MITIGATION MEASURES

INCORPORATED PLAN FEATURES

The Action Alternatives include features intended to reduce the negative effects associated with increased development intensity, including the following proposed Land Use Code amendments:

- Requirements for upper-level setbacks in the amended Lowrise 2, Lowrise 3, Midrise, and Highrise zones;

- Requirements for upper-level setbacks in the new NC-55, NC-75, and NC-95 zones;

- Limiting building depth in MR zones to 80 percent of the lot depth;

- Implementation of side façade design standards in Lowrise 1, Lowrise 2, and Lowrise 3 zones—the standards would address the placement of windows on side façades to increase privacy and would require side façade modulation or color/material variation; and

- Implementation of side and rear setbacks in NC zones if adjacent to a residential zone.

REGULATIONS AND COMMITMENTS

- SMC 25.05.675.P establishes policies for the protection of public views, including views of major man-made and natural landmarks;

- SMC 25.05.675.Q establishes policies to protect open spaces from shading and shadow effects caused by development and preserve access to light and air; and

- Chapter 23.41 of the SMC establishes citywide requirements for Design Review.

OTHER POTENTIAL MITIGATION MEASURES

Aesthetic and urban design impacts could be further mitigated through implementation of the following or similar measures:

Development Character, Height, and Scale

- For high-rise tower-style development, locate the tallest portions of the building to reduce scale impacts relative to the most sensitive edges of the property. Applying lower height limits for the "pedestal" or "podium" portion of the building could maintain a lower-intensity appearance at street level and reduce bulk and scale impacts on the pedestrian environment;

- Through the Design Review process, incorporate ground-level open space or mid-block pedestrian connections to break up the bulk of buildings and reduce the occurrence of monolithic building forms;

- Through the Design Review process, promote slimmer building forms that minimize blockage of light and views; and

- Through the Design Review process, include streetscape improvements to create a streetscape with universal design that is welcoming to pedestrians, cyclists, and all users of the public realm.

Modifications to Design Review

As discussed in 3.3.1 Affected Environment, design review is required for certain types of development according to codified thresholds. Aesthetic impacts could be mitigated by modifying design review thresholds to require design review for more types of development in the study area in locations that would be impacted by the proposal. For example, design review could be required for new multi-family developments in areas rezoned from single family, and in urban village expansion areas.

Neighborhood Design Guidelines

As discussed in 3.3.1 Affected Environment, some but not all urban villages that the proposal would affect have neighborhood design guidelines. Working with neighborhood groups to create and codify neighborhood design guidelines could mitigate localized aesthetic impacts for urban villages that do not currently have them.

View Obstruction and Shading Effects

- Citywide, require preservation or replacement of existing streetscape vegetation along designated scenic routes to preserve and/or improve visual character; and

- Through the design review or site-level SEPA review process, require detailed shading/shadow and view studies for new development in areas where the proposed MHA height limit increase is 30 feet or more to protect streetscapes and public open spaces from excessive shading.

3.3.4 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

Under all alternatives, additional growth would occur in the study area, leading to a general increase in building heights and development intensity over time, including the conversion of lower-intensity uses to higher-intensity uses as allowed by zoning. This transition is an unavoidable and expected characteristic of urban population and employment growth. The Action Alternatives would further this trend by creating additional development capacity, which could accelerate the development of taller, more intense buildings in the study area.

However, as described in 3.3.3 Mitigation Measures, the proposal includes a variety of features and development regulation amendments to minimize these impacts. In combination with the City's adopted development regulations, Design Review process, and the mitigation measures recommended in this EIS, aesthetic impacts should be reduced to less than significant levels. Therefore, no significant unavoidable adverse impacts are anticipated. In the urban context of a rapidly growing city, such changes are substantial but are also subjective in nature and are not necessarily significant impacts pursuant to SEPA.

3.4

TRANSPORTATION.

This chapter presents a multimodal transportation analysis prepared to evaluate the potential impacts of implementing the range of land use alternatives under consideration. The chapter presents existing transportation conditions within the City of Seattle, as well as future transportation conditions under three alternatives—one no action alternative representing a continuation of the City's adopted land use plan and two action alternatives reflecting increases in the amount of growth accommodated over the next twenty years as a result of the proposed legislation. Significant transportation impacts and potential mitigation strategies are identified for each future action alternative based on the policies and recommendations established in local plans.

3.4.1 AFFECTED ENVIRONMENT

This section describes the existing transportation conditions in Seattle. Information is provided on a citywide basis as well as for eight defined areas (or "EIS analysis sectors") as shown in Exhibit 3.4–1 on the following page, including Northwest Seattle, Northeast Seattle, Queen Anne/Magnolia, Downtown/Lake Union, Capitol Hill/Central District, West Seattle, Duwamish and Southeast Seattle.
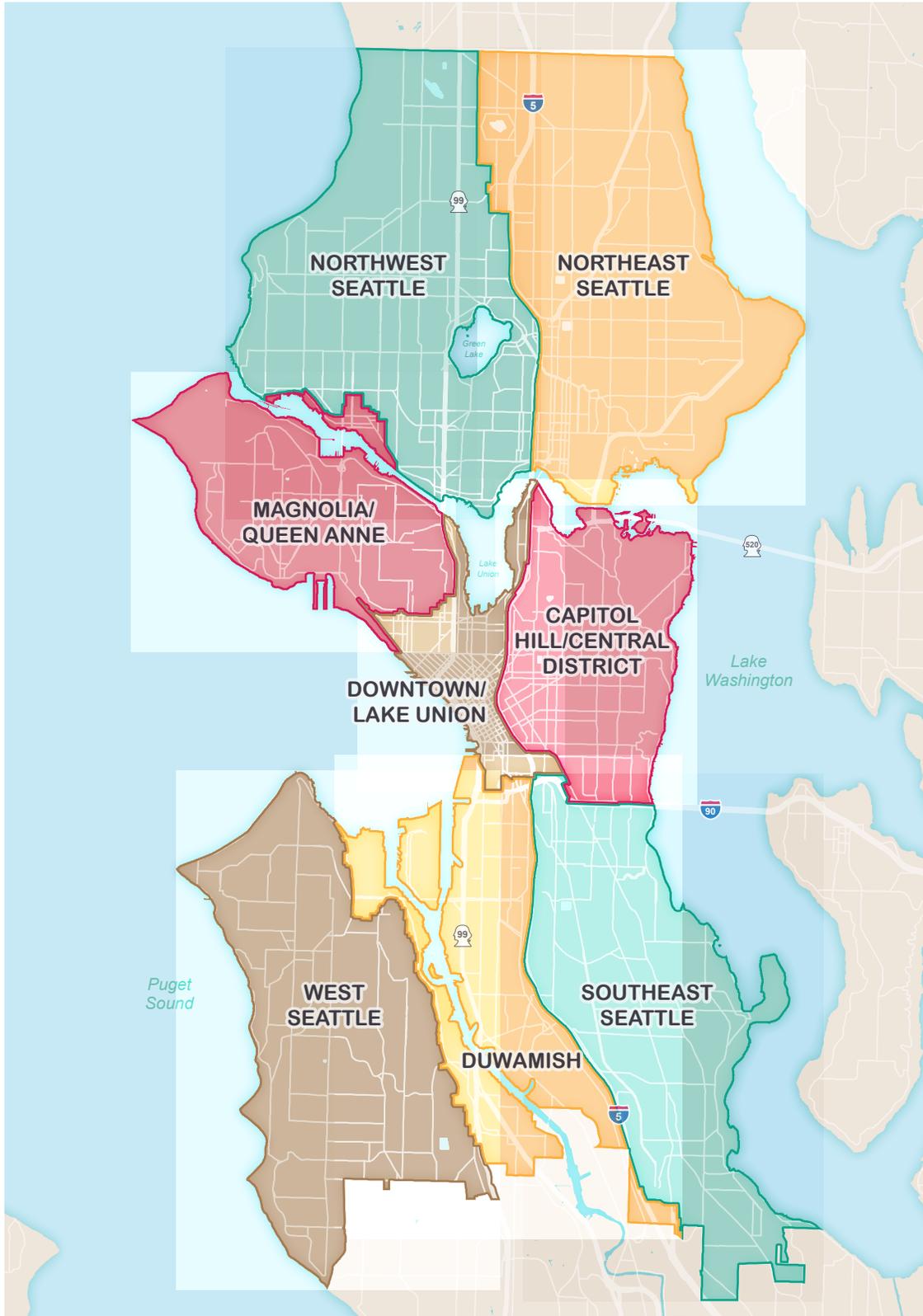
Exhibit 3.4–1 EIS Analysis Sectors

Source: City of Seattle, 2017; Fehr & Peers, 2017.

EXISTING TRANSPORTATION NETWORK

This section describes the existing transportation network in Seattle for all modes, including pedestrians, bicycles, transit, autos and freight.

Pedestrian Network

The Seattle pedestrian network is composed of sidewalks, crosswalks, staircases, pedestrian bridges, curb ramps and trails. Most urban centers and urban villages have well-connected sidewalk networks. The 2017 *Seattle Pedestrian Master Plan* (PMP) states that there are approximately 5,500 marked crosswalks, 33,600 blockfaces of sidewalks, and 27,300 curb ramps in Seattle (SDOT 2017a, 25). However, 26 percent of the blockfaces in the city are missing sidewalks (SDOT 2017a, 62). These locations are mostly found in the Northwest and Northeast Seattle sectors north of NE 85th Street, near the southwest city boundaries in the West Seattle Sector, in sections of the Duwamish Sector and the edges of the Southeast Seattle Sector.

The PMP designates a Priority Investment Network to prioritize the City's efforts on the locations most in need. The network is focused on key pedestrian connections to schools and frequent transit stops. Exhibit 3.4–2 through Exhibit 3.4–7 show the Priority Investment Network throughout the city. The City has made steady progress on pedestrian improvements through the Bridging the Gap levy. From 2007 to 2015, there have been 118 new blocks of sidewalk constructed, 122 curb ramps constructed, 50 stairways rehabilitated, 5,766 crosswalks remarked, and crossing improvements at 266 locations among other improvements (SDOT 2015, 6).
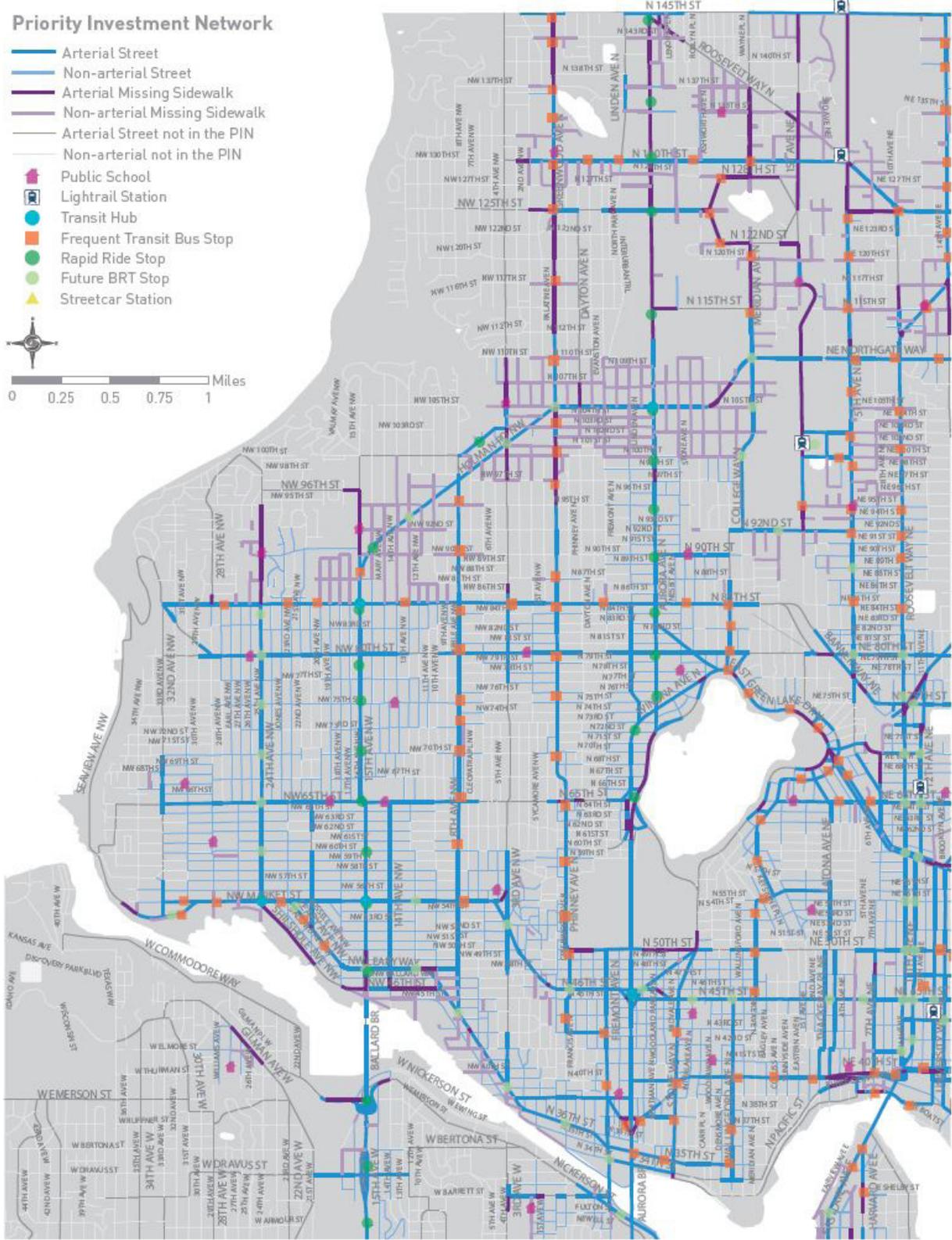
Exhibit 3.4–2   Pedestrian Master Plan Priority Investment Network, Northwest Seattle

Source: City of Seattle, 2017.
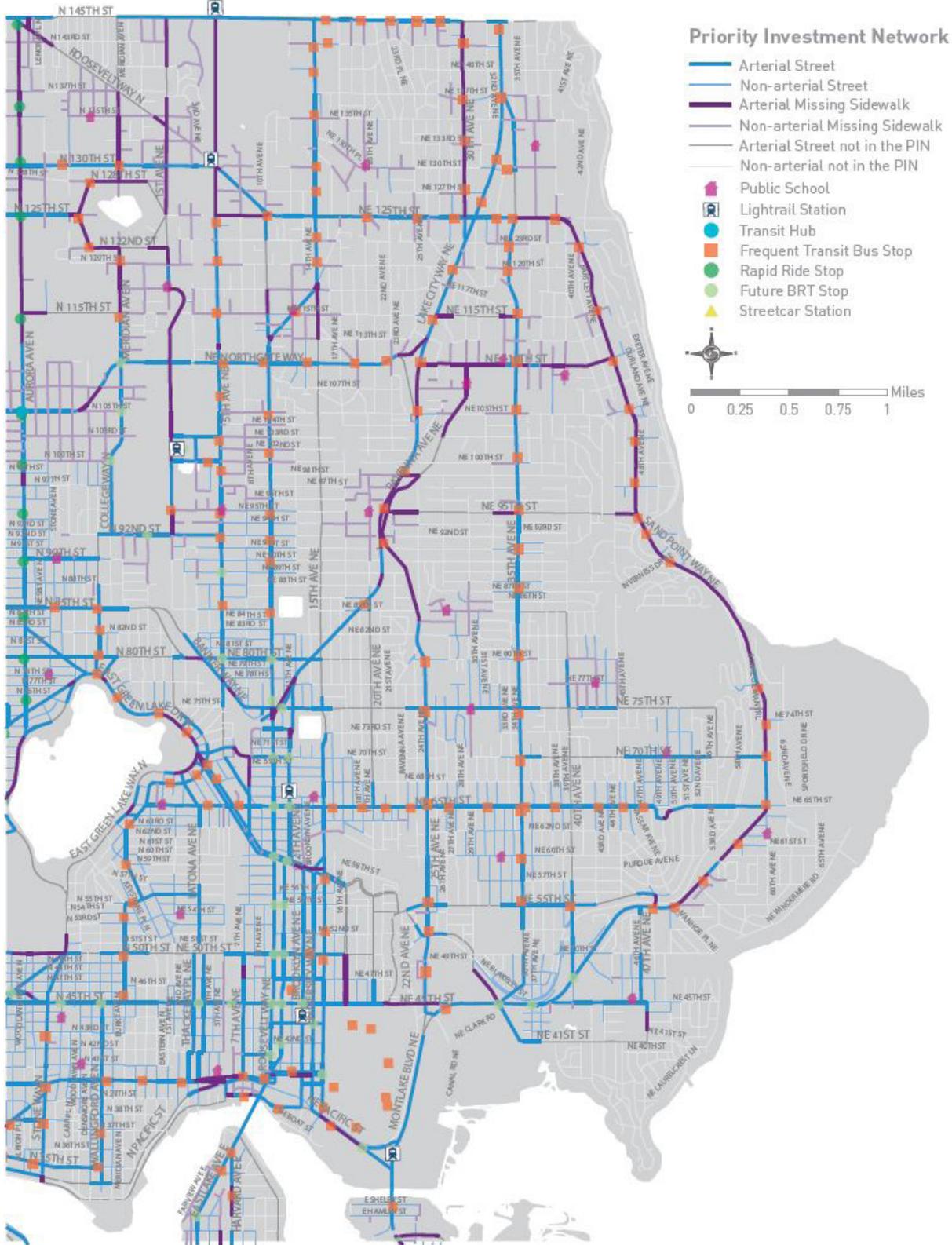
Exhibit 3.4–3   Pedestrian Master Plan Priority Investment Network, Northeast Seattle

Source: City of Seattle, 2017.

Priority Investment Network

- ——— Arterial Street
- ——— Non-arterial Street
- ——— Arterial Missing Sidewalk
- ——— Non-arterial Missing Sidewalk
- ——— Arterial Street not in the PIN
- ——— Non-arterial not in the PIN

- Public School
- Lightrail Station
- Transit Hub
- Frequent Transit Bus Stop
- Rapid Ride Stop
- Future BRT Stop
- Streetcar Station

Miles
0   0.25   0.5   0.75   1
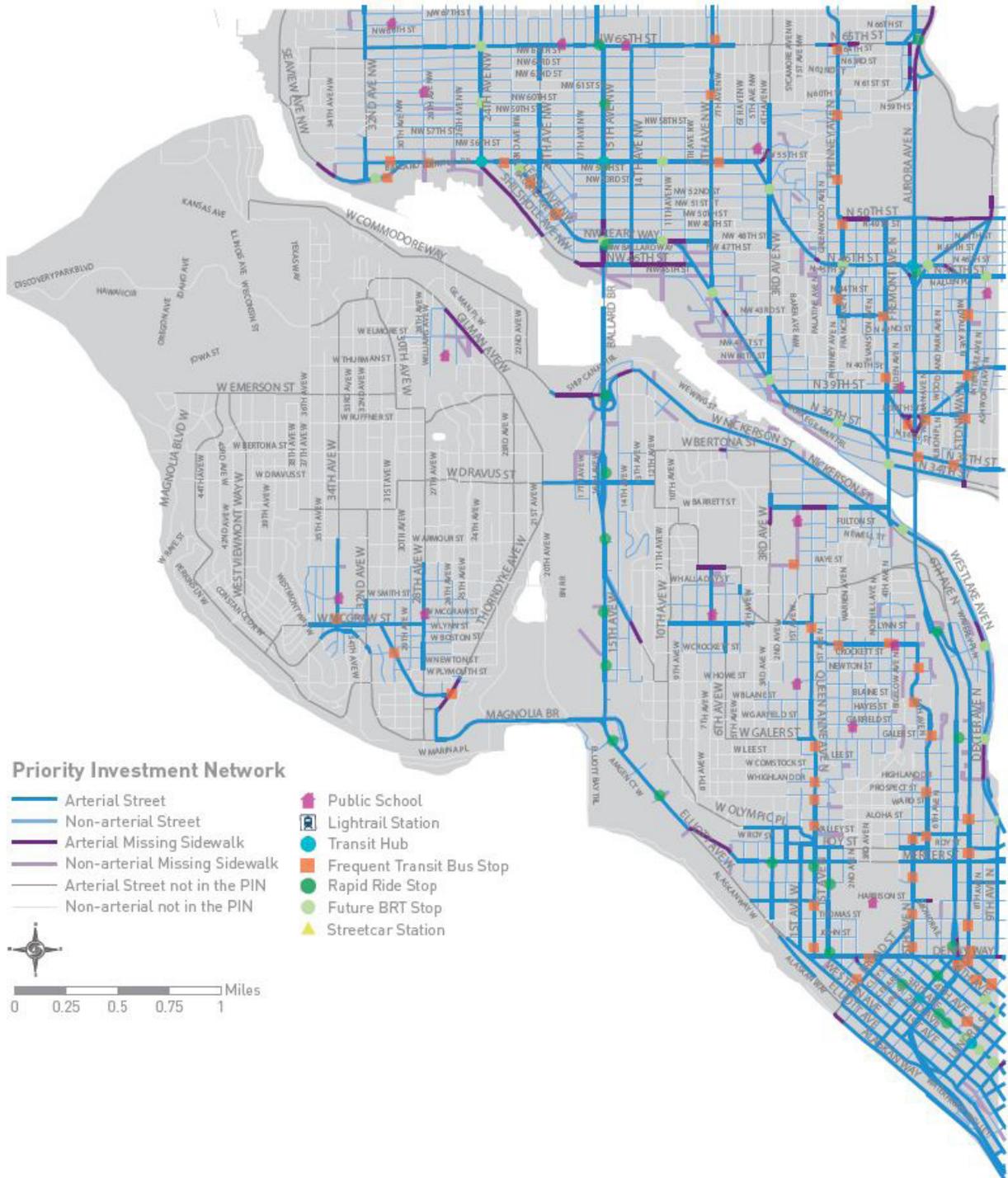
Exhibit 3.4–4   Pedestrian Master Plan Priority Investment Network, West Central Seattle

Source: City of Seattle, 2017.
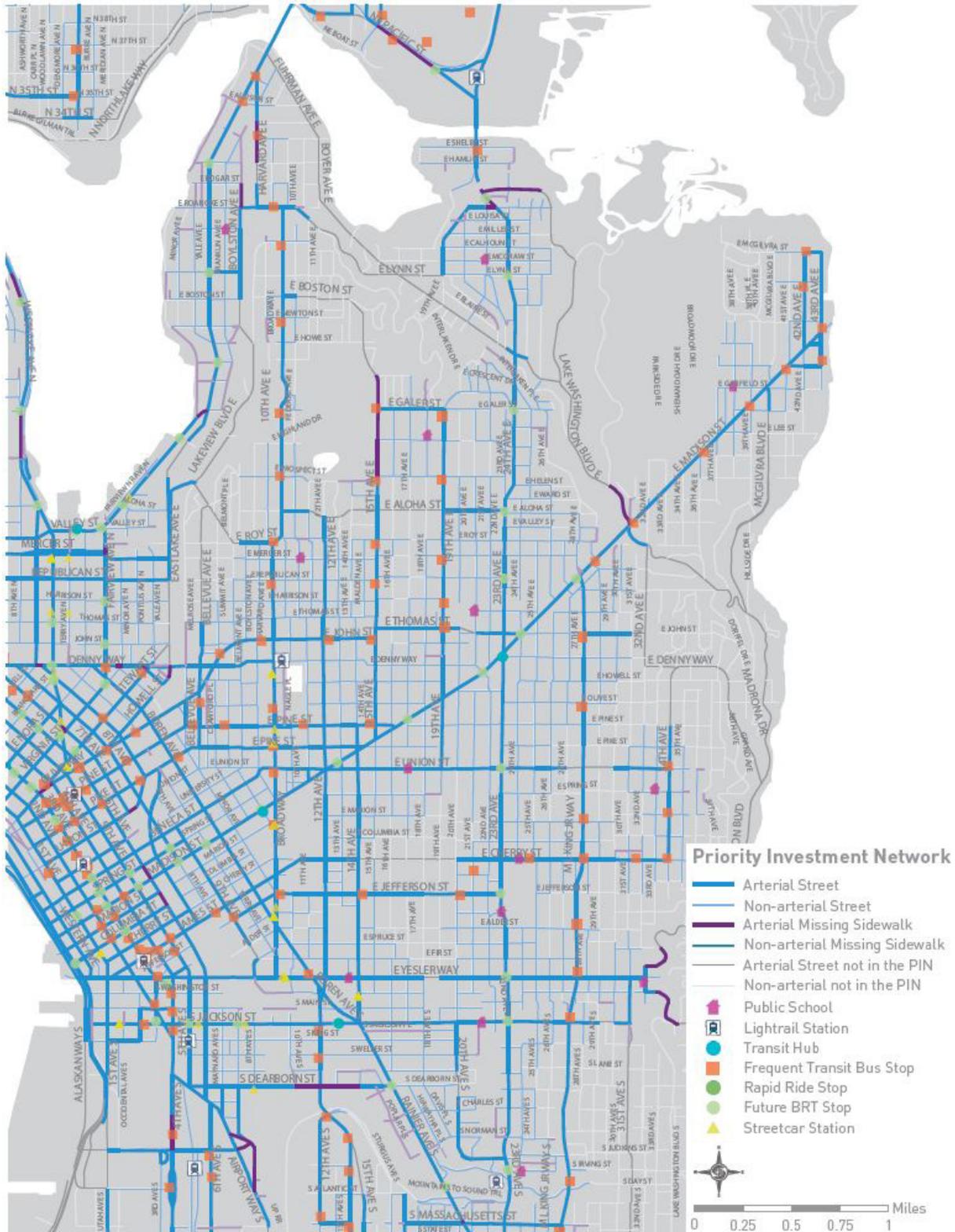
Exhibit 3.4–5   Pedestrian Master Plan Priority Investment Network, East Central Seattle

Source: City of Seattle, 2017.

Priority Investment Network

- ──── Arterial Street
- ──── Non-arterial Street
- ──── Arterial Missing Sidewalk
- ──── Non-arterial Missing Sidewalk
- ──── Arterial Street not in the PIN
- ──── Non-arterial not in the PIN
- 🏠 Public School
- 🚉 Lightrail Station
- 🔵 Transit Hub
- 🟧 Frequent Transit Bus Stop
- 🟢 Rapid Ride Stop
- 🟡 Future BRT Stop
- 🔺 Streetcar Station
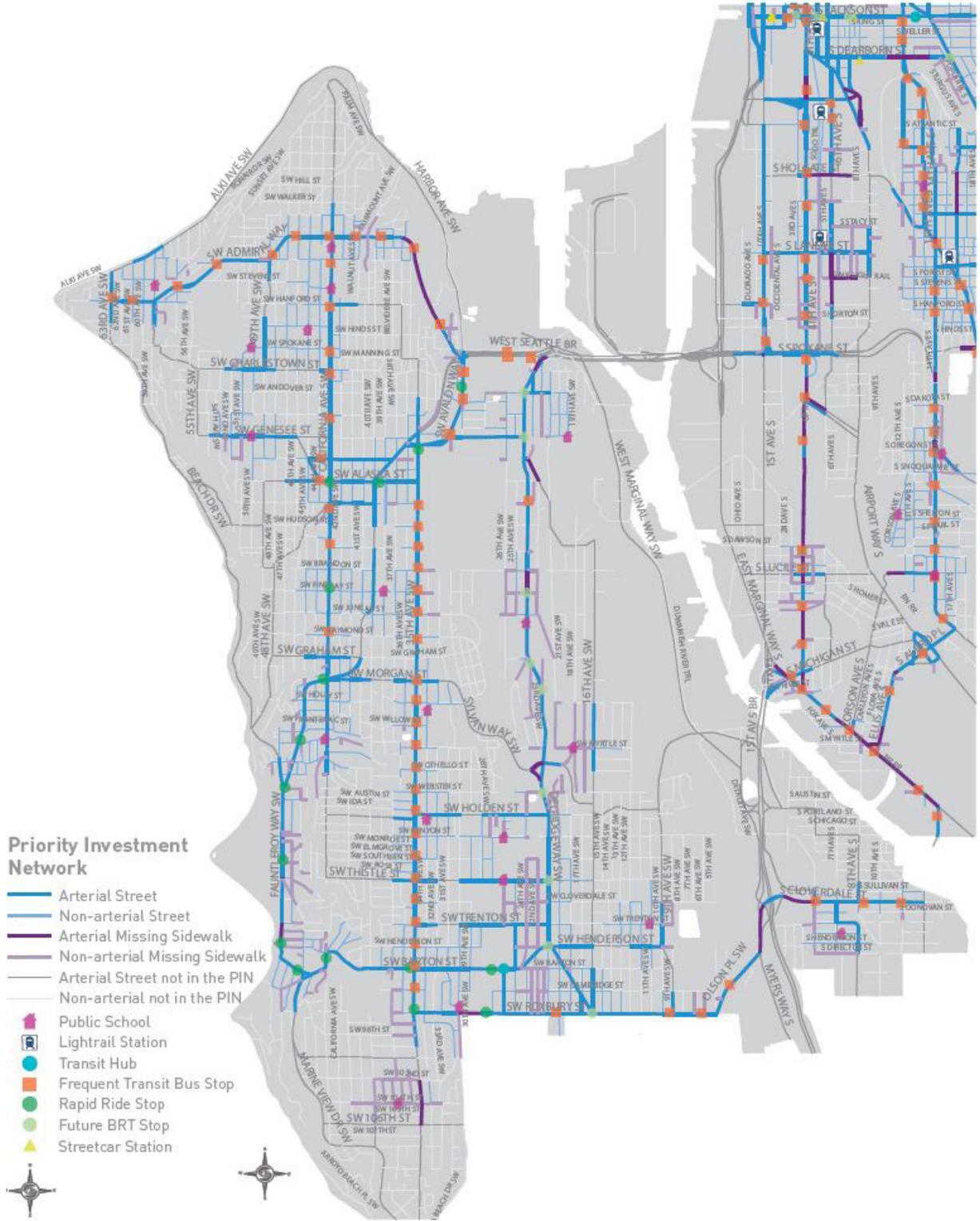
Exhibit 3.4–6   Pedestrian Master Plan Priority Investment Network, Southwest Seattle

Source: City of Seattle, 2017.

Priority Investment Network

- ▬ Arterial Street
- ▬ Non-arterial Street
- ▬ Arterial Missing Sidewalk
- ▬ Non-arterial Missing Sidewalk
- ▬ Arterial Street not in the PIN
- ▬ Non-arterial not in the PIN

- 🏠 Public School
- 🚉 Lightrail Station
- 🔵 Transit Hub
- 🟧 Frequent Transit Bus Stop
- 🟢 Rapid Ride Stop
- 🟢 Future BRT Stop
- 🔺 Streetcar Station
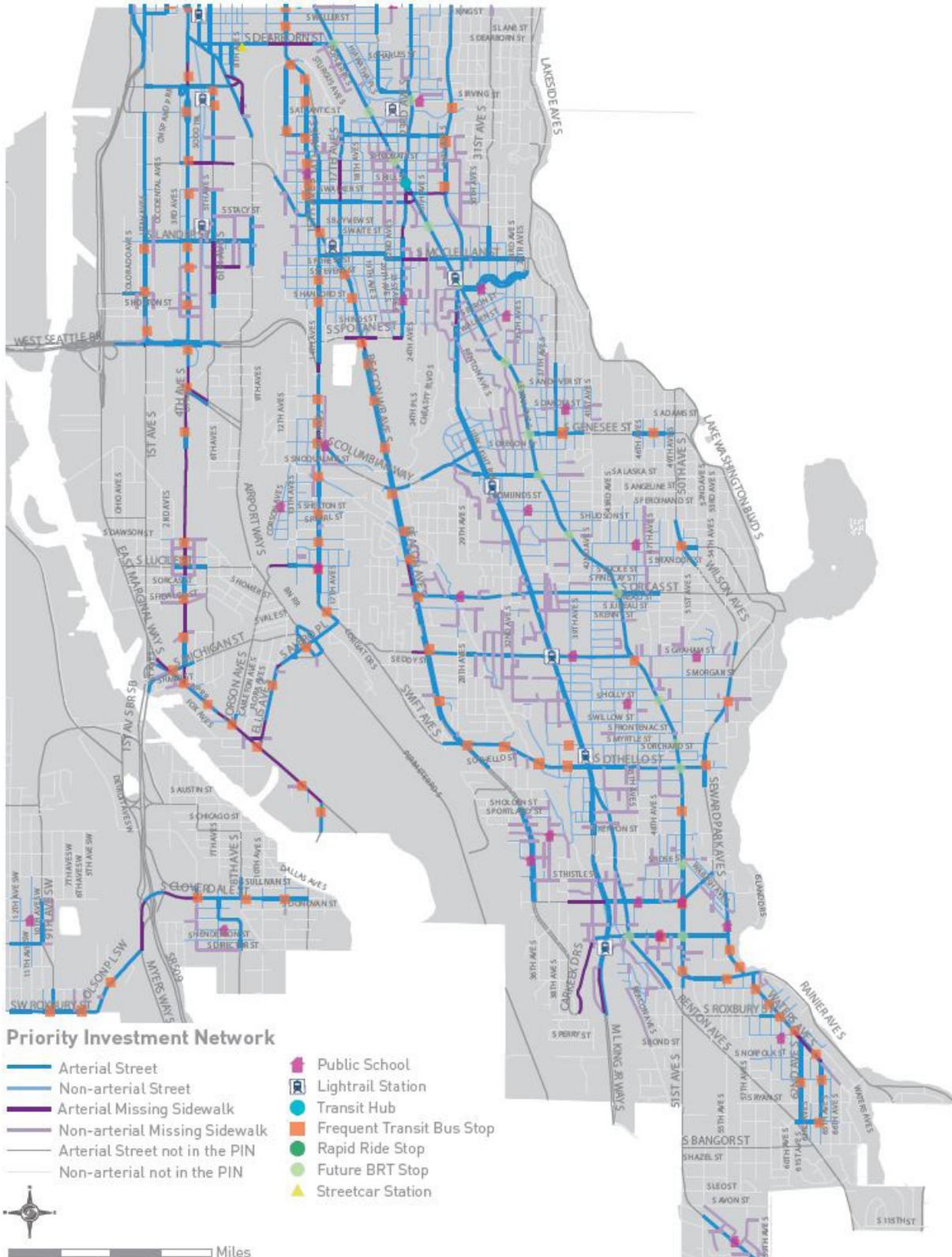
Exhibit 3.4–7   Pedestrian Master Plan Priority Investment Network, Southeast Seattle

Source: City of Seattle, 2017.

Bicycle Network

Seattle's bicycle facilities consist of off-street facilities such as multi-use trails, cycle tracks—protected bicycle lanes, physically separated (raised or with an on-street barrier), neighborhood greenways, bicycle and climbing lanes, shared street bicycle facilities or "sharrows", and signed routes. Exhibit 3.4–88 shows existing bicycle facilities; the planned network is show in Exhibit 3.4–9 through Exhibit 3.4–14.

Bicycle facilities are spread throughout the city and are more prevalent in urban centers such as Downtown, First/Capitol Hill, the University District, South Lake Union, and Uptown (also known as Lower Queen Anne). Trails are generally along the water (Lake Washington, Ship Canal, Puget Sound), while neighborhood greenways are in more residential locations of the Northwest, Northeast, Southeast and West Seattle sectors. Locations of gaps in the bicycle network are identified throughout Seattle in the *Bicycle Master Plan*, which recommends over 400 miles of new bicycle facilities and connections by 2030.

The City collects bicycle counts three times a year at 50 locations in Seattle. The highest bicycle count locations are at ship canal crossings, and in the South Lake Union, Capitol Hill, and the Downtown neighborhoods. Over the past six years, the data has generally shown steadily climbing numbers of bicycle riders, although the 2016 count showed a decline. However, this data is thought to be anomalous due to data errors and weather conditions on the days of the 2016 counts.

Legend

Existing Bike Facilities

Neighborhood greenway	
Protected bike lane	
Multi use trail	
In street, minor separation	

Exhibit 3.4–8   Existing Bicycle Facilities

Source: City of Seattle, 2017.

NW Sector

Legend

Citywide Network

Existing	Recommended	
(red solid)	(red dotted)	Off street
(blue solid)	(blue dotted)	Cycle track (protected bicycle lanes)
(green solid)	(green dotted)	Neighborhood greenway

Local Connectors

Existing	Recommended	
(red solid)	(red dashed)	Off street
(blue solid)	(blue dashed)	Cycle track (protected bicycle lanes)
(orange solid)	(orange dashed)	In street, minor separation
(green solid)	(green dashed)	Neighborhood greenway
(teal solid)	(teal dashed)	Shared street

- Existing light rail station
- Future light rail station
- Public school
- Stairway (along neighborhood greenway)
- ⑥ Catalyst project location

0   0.5   1 Mile

The Burke-Gilman Trail Missing Link
The network map shows the alignment for the Burke-Gilman Trail that has been previously adopted by the Seattle City Council. At the time this Bicycle Master Plan was adopted, an Environmental Impact Statement was being prepared to consider this alignment and other alternative alignments. The final alignment for the completion of this portion of the Burke-Gilman Trail will be determined following the completion of the EIS process and any changes in alignment will be reflected in a subsequent update of the BMP.

Potential Location of new Ship Canal Crossing

Exhibit 3.4–9   Planned Bicycle Network, Northwest Seattle

Source: City of Seattle, 2017.

NE Sector

Legend

Citywide Network

Existing	Recommended	
		Off street
		Cycle track (protected bicycle lanes)
		Neighborhood greenway

Local Connectors

Existing	Recommended	
		Off street
		Cycle track (protected bicycle lanes)
		In street, minor separation
		Neighborhood greenway
		Shared street

- Existing light rail station
- Future light rail station
- Public school
- Stairway (along neighborhood greenway)
- Catalyst project location

Exhibit 3.4–10 Planned Bicycle Network, Northeast Seattle

Source: City of Seattle, 2017.

W Sector

Legend

Citywide Network

Existing	Recommended	
		Off street
		Cycle track (protected bicycle lanes)
		Neighborhood greenway

Local Connectors

Existing	Recommended	
		Off street
		Cycle track (protected bicycle lanes)
		In street, minor separation
		Neighborhood greenway
		Shared street

Existing light rail station

Future light rail station

Public school

Stairway (along neighborhood greenway)

⑥ Catalyst project location

Exhibit 3.4–11   Planned Bicycle Network, West Central Seattle

Source: City of Seattle, 2017.

E Sector

Legend

Citywide Network

Existing	Recommended	
		Off street
		Cycle track (protected bicycle lanes)
		Neighborhood greenway

Local Connectors

Existing	Recommended	
		Off street
		Cycle track (protected bicycle lanes)
		In street, minor separation
		Neighborhood greenway
		Shared street

- Existing light rail station
- Future light rail station
- Public school
- Stairway (along neighborhood greenway)
- ⑥ Catalyst project location

Exhibit 3.4–12 Planned Bicycle Network, East Central Seattle

Source: City of Seattle, 2017.

Exhibit 3.4–14 Planned Bicycle Network, Southeast Seattle

Source: City of Seattle, 2017.

Transit Services

Seattle's public transit services are provided by King County Metro, Sound Transit, Community Transit, and the City of Seattle. Transit data shows that there were 332,000 daily transit boardings in Seattle in 2016.[1] According to American Community Survey data, transit mode share for commute trips in Seattle has risen from 16 percent in 2005 to 21 percent in 2015. In the urban core of the city, transit ridership is substantially higher. In 2016, the mode share of workers who arrived to Seattle's center city core on weekdays between 6 AM and 9 AM by public transit was 47 percent. The transit mode share for the center city core has steadily risen since 2010 when it was 42 percent. The share of workers who drove alone to center city was 30 percent, down from 35 percent in 2010 (Commute Seattle 2017, 8).

- King County Metro operates a fixed route bus system that also includes "RapidRide," a separately-branded set of frequent transit routes in West Seattle, Ballard, North Seattle, and Downtown.

- Sound Transit Express and Community Transit operate buses that provide service from outside the City of Seattle.

- Rail transit services include Sound Transit Link Light Rail, City-operated streetcars in South Lake Union and First Hill, the monorail between Downtown and Seattle Center and the Sound Transit Sounder Commuter Train that provides service between Lakewood, Seattle and Everett during peak hours.

In 2016, the City amended its *Transit Master Plan* (TMP), which outlines the transit facilities, services and programs needed over the next 20 years to accommodate anticipated growth in Seattle. The City has designated ten High Capacity Transit (HCT) Corridors and eight Priority Bus Corridors, along with Link light rail and the street car system (see Exhibit 3.4–15). The plan recommends investments into seven HCT corridors to become new bus rapid transit (BRT) lines. These corridors are prioritized for capital investments to ensure mobility within Seattle, one of the key objectives outlined in the TMP. Another goal is to provide frequent transit service on these corridors to create and expand the Frequent Transit Network (a map of which may be found in the Seattle 2035 Comprehensive Plan). The Frequent Transit Network is composed of transit corridors that have, or are recommended for, frequent transit

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1 This daily transit boarding total includes King County Metro, Sound Transit and Community Transit routes. It does not include Pierce Transit routes.

Exhibit 3.4–15 Transit Master Plan, Priority Transit Corridors for Capital Investments

Source: City of Seattle, 2016.

service. This level of service is defined to encompass routes with average service frequency of 15 minutes or better for at least 18 hours per day, with service seven days per week (SDOT 2016b, 4-4).

Roadway Network

The City of Seattle includes roughly 1,550 lane-miles of arterial streets, 2,410 lane-miles of non-arterial streets, 117 bridges and 1,080 signalized intersections (City of Seattle 2017, 182). Much of Seattle's transportation network is constrained by the waterways within and around the city. The Ship Canal divides north Seattle from the rest of the city, with only six crossing points: the Ballard Bridge, the Fremont Bridge, State Route (SR) 99, Interstate 5 (I- 5), the University Bridge and the Montlake Bridge. Likewise, West Seattle is separated from the rest of the city by the Duwamish Waterway, and is accessed via the West Seattle Bridge, Spokane Street Bridge, the First Avenue S Bridge and the South Park Bridge.

I-5 runs north-south throughout the city, serving both local and regional travelers. SR 99 also runs north-south through the city and tends to serve more locally focused trips. To the east, there are two bridges across Lake Washington: SR 520 and Interstate 90 (I-90). Other key state routes within the city include SR 522 connecting to the northeast and SR 509 connecting south to Sea-Tac Airport. City arterials generally follow a grid pattern. The City has designated a major truck street network throughout the city that carries a substantial amount of freight traffic. The state routes, interstates and major arterials linking major freight destinations are part of this network.

Parking

The City of Seattle regulates parking within its right-of-way by issuing on-street permits, charging by the hour, setting time limits and defining load zones. The city regularly assesses the performance of its parking management programs to manage changing demand patterns.

Restricted Parking Zone (RPZ) Program

Seattle designates certain areas as Restricted Parking Zones (RPZ), as shown in Exhibit 3.4–16. These zones have time-limited parking available to the public. Residents with eligible addresses can apply for a permit to use the curb parking in their neighborhood without time limits. The aim is to balance the parking needs of the public and the residents and ease parking congestion in certain locations. There are 31 zones

Exhibit 3.4–16
Restricted Parking Zones

Source: City of Seattle, 2017.

in Seattle, with an additional two zones during University of Washington Husky game days. Seattle is currently evaluating potential changes to the RPZ program to better manage on-street parking supply; however, no changes have been identified at the time of this EIS publication.

On-Street Paid Parking

On-street paid parking is located in most Seattle urban centers (except for the Northgate area) and in select smaller locations near commercial business areas such as the Ballard, Fremont, and Roosevelt neighborhoods. The City manages approximately 12,000 paid on-street spaces in 20 business districts. Through Seattle's Performance-Based Parking Program, on-street parking rates are adjusted in neighborhoods to reach a target parking occupancy. The Seattle Department of Transportation regularly collects citywide parking utilization data to implement the Performance-Based Parking Program, established by Seattle Municipal Code 11.16.121 that states, in part:

> *The Director shall establish on-street parking rates and shall adjust parking rates higher (up to the Maximum Hourly Rate), or lower (as low as the Minimum Hourly Rate) in neighborhood parking areas based on measured occupancy so that approximately one or two open spaces are available on each blockface.*

The goals of the Performance-Based Parking Program are to:

- Support neighborhood business districts by having available on-street parking;

- Maintain adequate turnover and reduce meter feeding in commercial districts;

- Encourage adequate on-street parking availability, efficient use of off-street parking facilities, and enhanced use of transit and other transportation alternatives; and

- Reduce congestion in travel lanes caused by drivers looking for on-street parking.

Seattle's target on-street parking occupancy is 70–85 percent utilization citywide. Exhibit 3.4–17 shows the 2015 and 2016 daytime and evening occupancy rates by neighborhood. For neighborhoods with high concentrations of residential land uses, evening occupancy tends to be greater than daytime occupancy. In more commercial areas, generally closer to the city's urban centers, peak parking demand tends to occur during the daytime.

In 2016, three-quarters of the 32 surveyed locations experienced parking occupancy above the 85 percent target during either the daytime or evening periods. A quarter of the total locations experienced occupancy of 100 percent or more in at least one of the studied time periods.

The eight locations in which parking demand currently exceeds supply (i.e. occupancy of 100 percent or more) are:

- 12th Ave (evening)

- Ballard (evening)

- Capitol Hill—South (evening)

- Green Lake (daytime and evening)

- Pioneer Square—Core and Edge (daytime)

- Uptown—Core and Edge (evening)

Exhibit 3.4–17   Summary of 2015 and 2016 On-Street Occupancy by Neighborhood

		2015 OCCUPANCY		2016 OCCUPANCY	
Area	Subarea	11:00 AM—5:00 PM	7:00 PM	11:00 AM—4:00 PM	7:00 PM
12th Avenue		84%	106%	91%	108%
Ballard	Core	81%	103%	75%	105%
	Edge	72%	102%	77%	89%
Ballard Locks	Winter	19%	82%	36%	22%
	Summer	94%	52%	83%	69%
Belltown	North	71%	76%	74%	72%
	South	82%	86%	89%	87%
Capitol Hill	North	79%	101%	76%	91%
	South	77%	100%	72%	105%
Cherry Hill	Paid	93%	70%	98%	68%
Chinatown / ID	Core	92%	95%	96%	99%
	Edge	82%	92%	88%	76%
Commercial Core	Financial	91%	62%	94%	48%
	Retail	89%	63%	77%	65%
	Waterfront	93%	80%	94%	76%
Denny Triangle	North	88%	80%	94%	80%
	South	89%	72%	99%	90%
First Hill		93%	99%	95%	93%
Fremont	Paid	77%	88%	82%	90%
Green Lake	Paid	79%	99%	102%	108%
Pike-Pine	Paid	83%	106%	73%	93%
Pioneer Square	Core	101%	89%	101%	89%
	Edge	99%	83%	103%	80%
Roosevelt		73%	100%	54%	65%
South Lake Union	North	94%	27%	81%	48%
	South	98%	75%	91%	77%
University District	Core	75%	86%	77%	89%
	Edge	66%	30%	77%	51%
Uptown	Core	60%	94%	72%	101%
	Edge	75%	72%	75%	100%
Uptown Triangle		70%	56%	64%	64%
Westlake Ave N		77%	51%	79%	44%

Source: SDOT On-Street Paid Parking Occupancy Annual Report 2016c.

Safety

The City periodically releases reports summarizing citywide collision data. The most recently available data is for 2015, which had 10,930 police reported collisions. This number was slightly higher than the previous three years, but well below the highs of roughly 14,000–15,000 in years 2003 through 2008 (SDOT 2017b). The City has a Vision Zero policy that aims to reduce the number of fatalities and serious injuries to zero by 2030. The Vision Zero program includes a variety of strategies, including reduced speed limits, Safe Routes to Schools investments, safety improvements at high-risk locations, enforcement, and education. In 2016, there were 21 fatalities in the city. Although fatalities on city streets had been on a downward trend, there has been a recent increase. This trend is similar to what has been observed nationwide; a major factor in the uptick of fatalities is thought to be the increase in distracted driving.

RELEVANT PLANS AND POLICIES

Relevant policies related to transportation in Seattle are summarized below. The City of Seattle has a 10-year strategic plan outlined in *Move Seattle* (2015). Seattle also has master plans for transit, freight, pedestrians and bicyclists. More detailed information is available in the specified documents.

Move Seattle (2015)

Move Seattle is a strategic document published in 2015 that guides SDOT's work over the next ten years. The plan identifies the following three key elements:

- Organizing daily work around core values: a safe, interconnected, vibrant, affordable, and innovative city.
- Integrating modal plans to deliver transformational projects: this includes creating a near-term strategy to integrate recommendations from the freight, transit, walking, and bicycling 20-year modal plans.
- Prioritizing projects and work to identify funding: in 2015, voters approved a nine-year $930 million Levy to Move Seattle. This funding source replaces the prior Bridging the Gap levy which expired in 2015. SDOT is using the levy funds to implement projects including safety improvements, new facilities, as well as maintenance of existing infrastructure.

Transportation Strategic Plan (2005)

The *Transportation Strategic Plan (TSP)* is the Seattle Department of Transportation's (SDOT's) 20-year work plan developed in 2005. This strategic plan was updated in 2015 as part of the Move Seattle initiative. It includes the strategies and actions required to achieve the goals and policies outlined in the Seattle Comprehensive Plan and to comply with PSRC regional planning documents. The TSP guides prioritization of resources to projects, programs and services. The TSP includes supporting data such as street classifications and traffic volumes, planning areas, transit routes and sidewalk inventory, among others. In addition annual reports show the progress made toward reaching the set goals.

Transit Master Plan (2016)

The *Transit Master Plan (TMP)* is a 20-year plan that outlines the needs to meet Seattle's transit demand through 2030. It prioritizes capital investment to create frequent transit services that meet the needs of residents and workers. It outlines the high priority transit corridors and the preferred modes (see Exhibit 3.4–15). This document refers to the Transportation Strategic Plan and specifies capital projects to improve speed and reliability. Goals include:

- Meet sustainability, growth management and economic development goals.
- Make it easier and more desirable to take transit.
- Respond to needs of transit-reliant populations.
- Create great places where modes connect.
- Advance implementation within constraints. The elements of the document include policies and programs, transit corridors and service, access and connections to transit and funding and performance monitoring.

Pedestrian Master Plan (2017)

The *Pedestrian Master Plan (PMP)* envisions Seattle as the most walkable and accessible city in the nation. To achieve that vision, the following goals are identified:

- Reduce the number and severity of crashes involving pedestrians;

- Develop a connected pedestrian environment that sustains healthy communities and supports a vibrant economy;

- Make Seattle a more walkable city for all through public engagement, service delivery, accessibility, and capital investments that promote equity; and

- Get more people moving to improve health and increase mobility.

The plan documents existing pedestrian facilities and creates a Priority Investment Network to guide future improvements (see Exhibit 3.4–2 through Exhibit 3.4–7).

Seattle Bicycle Master Plan (2014)

The *Seattle Bicycle Master Plan (BMP)* provides guidance on future investments in bicycle facilities in Seattle, with a vision for bicycling as a safe and convenient mode for people of all ages and abilities on a daily basis. Goals include increasing bicycle ridership, safety, connectivity, equity and livability. The document outlines the existing network and over 400 miles of planned future network for the city. Strategies for end-of-trip facilities, programs, maintenance, project prioritization and funding are included. SDOT publishes annual reports to update the public on its progress toward implementing BMP projects and meeting the identified performance measures.

Freight Master Plan (2016)

The *Freight Master Plan* was adopted by the city in 2016. Its purpose is to ensure efficient and predictable goods movement in the region to promote economic activity and international trade. It analyzes the current freight facilities and their ability to accommodate future freight growth. The plan identifies six main goals with a total of 92 actions that address economy, safety, mobility, state of good repair, equity, and the environment in order to create a comprehensive freight network. This document is especially important for the two designated manufacturing and industrial centers, Ballard-Interbay-Northend and Greater Duwamish, the Port of Seattle, and the railroad operations throughout the city.

City Of Seattle 2017–2022 Transportation Capital Improvement Program

For the 2017 to 2022 period, the *Capital Improvement Program (CIP)* plans to invest more than $1.5 billion on developing, maintaining and operating Seattle's transportation system. The CIP aims to promote safe and efficient movement of people and goods and to enhance the quality of life, environments and economy within the city and surrounding areas. Funding has been designated for projects in the *Seattle Pedestrian Master Plan*, *Transit Master Plan*, *Bicycle Master Plan*, and *Freight Master Plan*. Highlighted improvement projects include:

- New sidewalks, particularly near schools
- School safety improvements
- Pedestrian crossing improvements and stairway rehabilitation
- Focus on ADA compliance for curb ramps
- Neighborhood greenways, bicycle lanes, and bicycle parking
- City Center Streetcar Connector project
- New Bus Rapid Transit corridors
- South Lander St Grade Separation
- Traffic camera replacement and maintenance
- Bridge replacement and repair
- 23rd Avenue Corridor Improvements
- Alaskan Way Viaduct and Seawall Replacement
- Elliott Bay Seawall Project
- Permitting System Integration
- Accessible Mt. Baker safety improvements
- Rainier Avenue Road Safety Corridor project

Complete Streets

This 2006 policy directs SDOT to consider roadway designs that balance the needs of all roadway users, including pedestrians, bicyclists, transit riders and people of all abilities, as well as automobiles and freight. Design decisions are based on data, such as the adjacent land uses and anticipated future transportation needs. There is no set design template for complete streets as every situation requires a unique balance of design features within the available right-of-way. However, examples include providing wider sidewalks, landscaping, bicycle lanes, transit stop amenities and adequate lane widths for freight operations.

ANALYSIS METHODOLOGY

The proposed actions being evaluated in this document are area-wide and programmatic in nature, rather than location specific. Therefore, the methodology used to evaluate potential changes and impacts to the transportation network is broad-based as is typical for the analysis of large-scale plan updates.[2]

This section describes the methodology used to analyze base year transportation conditions in Seattle. The base year for this analysis is 2015. For some metrics, the most recently available data is provided while others use estimates from the 2015 project travel demand model. The project travel demand model is discussed in more detail in 3.4.2 Impacts.

The analyses conducted for this EIS fall into two categories: those used to determine significant adverse transportation impacts and those provided for informational purposes only. These metrics are described in the following sections.

Metrics Used for Impact Identification

The standards included in Seattle's two most recent Comprehensive Plans (*Toward a Sustainable Seattle* first adopted in 2005 and Seattle 2035 adopted in 2016) are used to determine significant transportation impacts in this EIS. Seattle 2035 included a shift in the way that transportation level of service is measured, from screenlines to mode share. While mode share is a better way to evaluate how the city is shifting travel to more space-efficient modes, screenlines will continue to be evaluated in this EIS to identify potential traffic congestion impacts. Pedestrian, bicycle, safety and parking conditions are also qualitatively evaluated and used for impact identification

Vehicle Volume-to-Capacity Screenlines

The 2005 Comprehensive Plan previously set the PM peak hour level of service (LOS) standards for locally-owned arterials and transit routes using the concept of "screenlines." Screenlines are used to evaluate autos (including freight) and transit as buses generally travel in the same traffic stream as autos. A screenline is an imaginary line that may intersect multiple arterials and across which the number of passing vehicles is counted. Each screenline's LOS standard is in the form of a volume-to-capacity (V/C) ratio: the number of vehicles crossing

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2 *This large-scale analysis approach differs from the intersection-level analysis that may be more appropriate for assessing the effects of development on individual parcels or blocks.*

the screenline compared to the designated capacity of the roadways crossing the screenline. The 2005 Comprehensive Plan evaluated 28 screenlines during the PM peak hour. Exhibit 3.4–18 and Exhibit 3.4–19 summarize the location of each screenline, as well as its LOS standard as designated in the 2005 Comprehensive Plan. The City no longer uses screenlines as its level of service standard, but it remains a useful metric for identifying areas experiencing congestion.

Exhibit 3.4–18   Screenline Level of Service Thresholds

Screenline #	Screenline Location	LOS Standard
1.11	North City Limit—3rd Ave NW to Aurora Ave N	1.20
1.12	North City Limit—Meridian Ave N to 15th Ave NE	1.20
1.13	North City Limit—30th Ave NE to Lake City Way NE	1.20
2	Magnolia	1.00
3.11	Duwamish River—West Seattle Bridge & Spokane St	1.20
3.12	Duwamish River—1st Ave S & 16th Ave S	1.20
4.11	South City Limit—Martin Luther King Jr. Way to Rainier Ave S	1.00
4.12	South City Limit—Marine Dr SW to Meyers Way S	1.00
4.13	South City Limit—SR 99 to Airport Way S	1.00
5.11	Ship Canal—Ballard Bridge	1.20
5.12	Ship Canal—Fremont Bridge	1.20
5.13	Ship Canal—Aurora Bridge	1.20
5.16	Ship Canal—University & Montlake Bridges	1.20
6.11	South of NW 80th St—Seaview Ave NW to 15th Ave NW	1.00
6.12	South of N(W) 80th St—8th Ave NW to Greenwood Ave N	1.00
6.13	South of N(E) 80th St—Linden Ave N to 1st Ave NE	1.00
6.14	South of NE 80th St—5th Ave NE to 15th Ave NE	1.00
6.15	South of NE 80th St—20th Ave NE to Sand Point Way NE	1.00
7.11	West of Aurora Ave—Fremont Pl N to N 65th St	1.00
7.12	West of Aurora Ave—N 80th St to N 145th St	1.00
8	South of Lake Union	1.20
9.11	South of Spokane St—Beach Dr SW to W Marginal Way SW	1.00
9.12	South of Spokane St—E Marginal Way S to Airport Way S	1.00
9.13	South of Spokane St—15th Ave S to Rainier Ave S	1.00
10.11	South of S Jackson St—Alaskan Way S to 4th Ave S	1.00
10.12	South of S Jackson St—12th Ave S to Lakeside Ave S	1.00
12.12	East of CBD	1.20
13.11	East of I-5—NE Northgate Way to NE 145th St	1.00
13.12	East of I-5—NE 65th St to NE 80th St	1.00
13.13	East of I-5—NE Pacific St to NE Ravenna Blvd	1.00

Source: Toward a Sustainable Seattle, 2005 Comprehensive Plan.
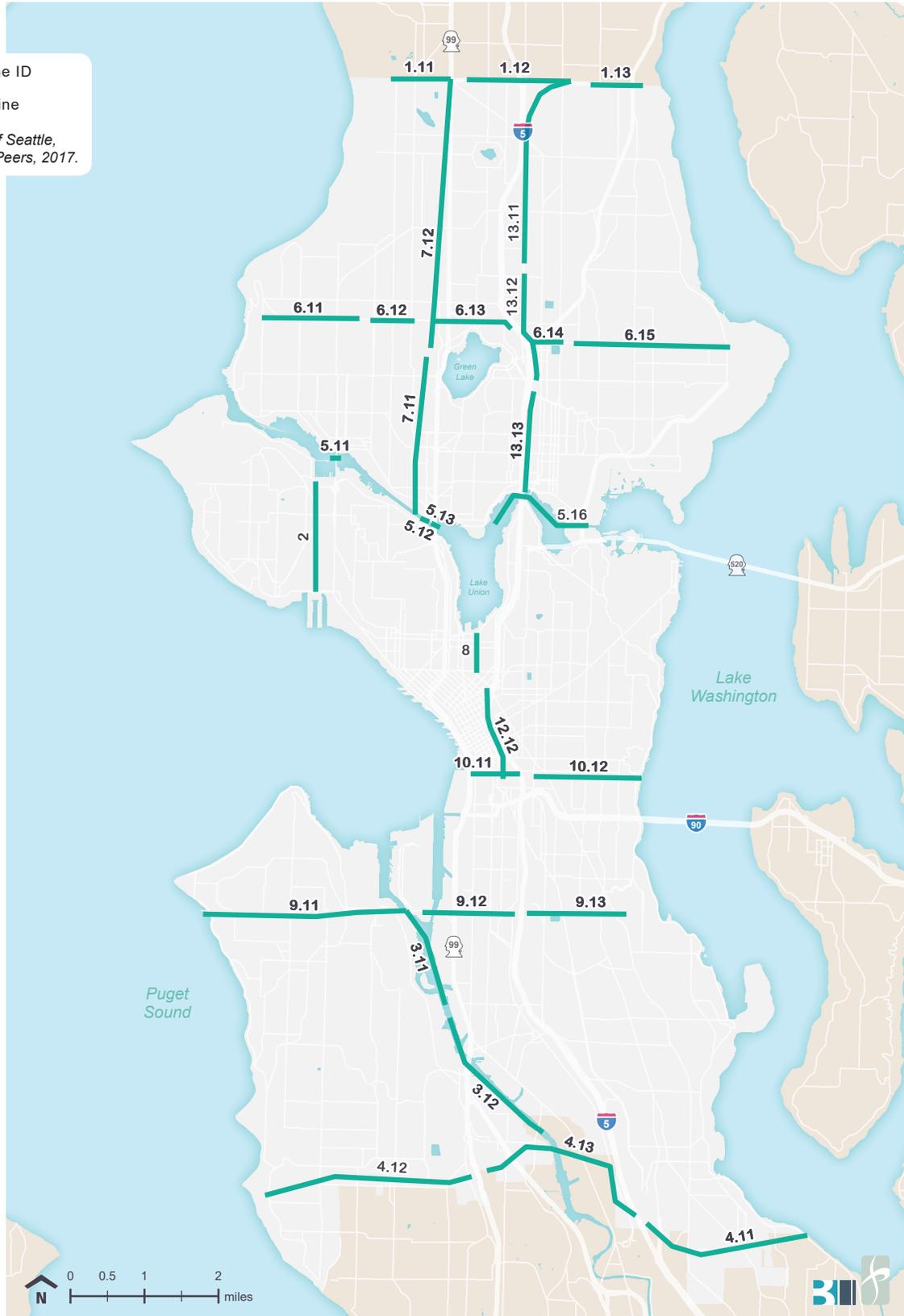
Exhibit 3.4–19 City of Seattle Screenlines

Mode Share

Seattle 2035 uses the concept of mode share to evaluate Seattle's transportation network. Mode share and single occupant vehicle (SOV) trips were evaluated for trips originating from or destined to each of the eight sectors during the PM peak period. All trip types are included in the analysis (as opposed to the commute trip mode share data from Commute Seattle or the US Census Bureau). The base year mode share estimates used in this analysis are from the 2014 PSRC Household Travel Survey. Forecasted future year mode shares pivot from the household survey results and are estimated using the projected change in mode share forecasted by the project travel demand model.

The City's new LOS concurrency mode share standard establishes as a goal that at least five percent of PM peak hour vehicle trips that would otherwise travel by SOV will shift to other modes (carpool, transit, bike, or walk) as a result of transportation demand management (TDM) strategies and public investments. This shift in travel modes is only assumed for new development—no additional mode shift is assumed for existing development. This results in drive alone mode share targets for each sector as shown in Exhibit 3.4–20.

Exhibit 3.4–20   Drive Alone Mode Share Targets

Sector	SOV Target (2035)
Northwest Seattle	37
Northeast Seattle	35
Queen Anne/Magnolia	38
Downtown/Lake Union	18
Capitol Hill/Central District	28
West Seattle	35
Duwamish	51
Southeast Seattle	38

Source: Seattle 2035 Comprehensive Plan, 2016.

Transit Daily Boardings

Transit is a critical part of maintaining the city's mobility. To assess the demand for transit against the system's capacity, daily transit boardings are evaluated under each alternative. King County Metro's Long-Range Plan anticipates providing a 70 percent increase in transit service hours by 2040 to serve more than double the number of existing daily boardings. The growth in projected AM period transit boardings in Seattle is evaluated to assess against King County Metro plans.

Overcrowding on specific transit lines is an indicator of whether or not adequate transit service is provided to support the planned growth and ridership demand in particular areas of the city. This EIS also evaluates transit overcrowding on the ten future BRT lines which cover the core transit corridors in Seattle. Most of these new BRT lines are enhancing existing transit routes with more frequent service, along with other capital investments.

King County Metro service guidelines measures bus overcrowding by setting a "crowding" threshold which represents what the maximum average passenger load should be for each transit trip. The crowding threshold allows for some standing passengers in addition to having all seats filled. To evaluate the transit service in this EIS, a ratio of the projected average maximum passenger load to the crowding threshold was calculated. Existing AM average maximum passenger loads were reported for each route using Fall 2016 data. Future year transit demand was estimated based on the increase in each BRT route's ridership growth forecasted in the project travel demand model.

Other Metrics

This EIS includes additional metrics to help illustrate the differences between existing conditions and each of the future year alternatives. However, the City has not adopted any formal standards for these metrics and they are not used to identify deficiencies or impacts within this environmental document.

State Facilities

The designated screenlines include some facilities owned by the Washington Department of Transportation (WSDOT), such as SR 99 and SR 522. To provide a complete assessment, this analysis was supplemented to include state facilities not included in the screenlines.

These include I-5, I-90, SR 509, SR 519 and SR 520, which are designated as Highways of Statewide Significance by WSDOT. Exhibit 3.4–21 summarizes the segments analyzed. WSDOT sets the standard for these facilities at LOS D for the PM peak hour.[3] The purpose of the evaluation of state facilities is to monitor performance and facilitate coordination between the city and state per the Growth Management Act.

Exhibit 3.4–21   State Facility Analysis Locations

State Facility	Location	LOS Standard
I-5	North of NE Northgate Way	D
I-5	Ship Canal Bridge	D
I-5	North of West Seattle Bridge	D
I-5	North of Boeing Access Rd	D
I-90	East of Rainier Ave S	D
SR 509	Between S 112th St and Cloverdale St	D
SR 519	West of 4th Ave	D
SR 520	Lake Washington Bridge	D

Source: WSDOT Community Planning Portal, 2017.

The freeway segments are analyzed using the same V/C concept that the City uses for its screenlines. Average daily volumes were collected from WSDOT's online Community Planning Portal. Capacities were determined using a set of tables developed by the Florida Department of Transportation (FDOT) based on the 2010 Highway Capacity Manual. The capacities are based on the characteristics of the roadway including number of lanes, presence of auxiliary lanes and presence of ramp metering.[4]

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3 *LOS D is defined using the methodologies outlined in the Highway Capacity Manual, Transportation Research Board, 2010 and other methods based on this document.*

4 *Daily capacities for each LOS threshold are based upon equivalent PM peak hour conditions; they are factored to a time period for which data is more readily available. Therefore, this evaluation is representative of PM peak hour conditions as defined by WSDOT's LOS standard.*

Exhibit 3.4–22   Travel Time Corridors

Travel Time

Travel time was selected as a performance measure for autos, freight and transit because it addresses the fundamental concern of most travelers—how long does it take to move within the city? Nineteen study corridors were selected throughout the city, as shown in Exhibit 3.4–22. Travel times were collected along each study corridor during the weekday PM peak hour from Google's travel time estimates.[5]

The 2010 Highway Capacity Manual (HCM) defines thresholds for speed along urban streets to describe traffic operations by assigning a letter grade of A through F, where A represents free-flow conditions and F represents highly congested conditions.

Since speed is the inverse of travel time, these thresholds can be communicated in terms of travel time as shown in Exhibit 3.4–23. In simple terms, if you are traveling at half the posted speed limit, your travel time will be double what it would take traveling at the speed limit.

Exhibit 3.4–23   Thresholds for Travel Speeds and Travel Time

	SPEED THRESHOLD	TRAVEL TIME THRESHOLDS
LOS	Percent of Free-Flow Speed	Ratio Between PM Peak Hour Travel Time and Travel Time at Free-Flow Speed
A-C	>50%	<2.0
D	>40-50%	2.0 to <2.5
E	>30-40%	2.5 to <3.33
F	≤30%	≥3.33

Source: Highway Capacity Manual 2010, Transportation Research Board.

The HCM criteria were developed for urban areas and therefore assume some level of delay at intersections because it is unrealistic to not encounter a red light on a typical trip.

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5 *Google's travel time estimates are based on a variety of sources, including INRIX speed data.*

ANALYSIS RESULTS

This section summarizes the results of the analysis used to evaluate existing transportation conditions in Seattle.

Metrics Used for Impact Identification

Screenlines

The most recently available PM peak hour traffic counts collected by the City of Seattle were compiled for the screenline analysis. Because traffic counts can vary considerably from year to year (due to unique factors on the day the count was taken, construction, etc.), an average of the available counts between 2012 and 2017 was used for each location.

As shown in Exhibit 3.4–24, none of the City's screenlines exceeded the standard that was in place for 2015. The screenline nearest to the capacity threshold is the Ballard Bridge at 0.99 in the northbound direction. However, the threshold there was set at 1.2.

Exhibit 3.4–24   2015 PM Peak Hour Screenline Volume-to-Capacity

Screenline #	Screenline Location	LOS Standard	NB/EB	SB/WB
1.11	North City Limit—3rd Ave NW to Aurora Ave N	1.20	0.74	0.55
1.12	North City Limit—Meridian Ave N to 15th Ave NE	1.20	0.76	0.45
1.13	North City Limit—30th Ave NE to Lake City Way NE	1.20	0.92	0.60
2	Magnolia	1.00	0.48	0.62
3.11	Duwamish River—West Seattle Bridge & Spokane St	1.20	0.60	0.85
3.12	Duwamish River—1st Ave S & 16th Ave S	1.20	0.36	0.37
4.11	South City Limit—Martin Luther King Jr. Way to Rainier Ave S	1.00	0.52	0.71
4.12	South City Limit—Marine Dr SW to Meyers Way S	1.00	0.38	0.45
4.13	South City Limit—SR 99 to Airport Way S	1.00	0.29	0.47
5.11	Ship Canal—Ballard Bridge	1.20	0.99	0.55
5.12	Ship Canal—Fremont Bridge	1.20	0.88	0.63
5.13	Ship Canal—Aurora Bridge	1.20	0.81	0.62
5.16	Ship Canal—University & Montlake Bridges	1.20	0.82	0.89
6.11	South of NW 80th St—Seaview Ave NW to 15th Ave NW	1.00	0.41	0.42
6.12	South of N(W) 80th St—8th Ave NW to Greenwood Ave N	1.00	0.74	0.65
6.13	South of N(E) 80th St—Linden Ave N to 1st Ave NE	1.00	0.49	0.41
6.14	South of NE 80th St—5th Ave NE to 15th Ave NE	1.00	0.55	0.50
6.15	South of NE 80th St—20th Ave NE to Sand Point Way NE	1.00	0.47	0.45
7.11	West of Aurora Ave—Fremont Pl N to N 65th St	1.00	0.52	0.66
7.12	West of Aurora Ave—N 80th St to N 145th St	1.00	0.46	0.58
8	South of Lake Union	1.20	0.49	0.42
9.11	South of Spokane St—Beach Dr SW to W Marginal Way SW	1.00	0.40	0.50
9.12	South of Spokane St—E Marginal Way S to Airport Way S	1.00	0.50	0.52
9.13	South of Spokane St—15th Ave S to Rainier Ave S	1.00	0.43	0.59
10.11	South of S Jackson St—Alaskan Way S to 4th Ave S	1.00	0.54	0.61
10.12	South of S Jackson St—12th Ave S to Lakeside Ave S	1.00	0.52	0.59
12.12	East of CBD	1.20	0.41	0.41
13.11	East of I-5—NE Northgate Way to NE 145th St	1.00	0.62	0.58
13.12	East of I-5—NE 65th St to NE 80th St	1.00	0.54	0.50
13.13	East of I-5—NE Pacific St to NE Ravenna Blvd	1.00	0.60	0.53

Source: SDOT count data, 2012–2017.

Mode Share

The PM peak period SOV mode share for all trips for each of the sectors is shown in Exhibit 3.4–25. Downtown/Lake Union has the lowest SOV share at 23 percent and Duwamish has the highest SOV share at 54 percent. The 2035 mode share targets are two to five percentage points lower than the existing SOV mode shares, which is expected because ongoing transit, pedestrian, and bicycle improvements are expected to reduce SOV trips over the coming years.

Transit Daily Boardings and Crowding

There was an average of 332,000 transit boardings in Seattle in 2016.[6] Exhibit 3.4–26 summarizes the ratio of the existing maximum load to the crowding threshold for the AM period. Only peak direction of transit travel is shown for each route. As not all ten planned BRT routes currently exist, equivalent existing routes are reported. All routes have a ratio of maximum passenger load to crowding threshold at less than 1.0 during the AM period. Because the crowding threshold is larger than the number of seats on each bus trip, it means that some routes, such as the C Line and E Line with a ratio greater than 0.64, will have portions of the route with standing room only. The demand used for analysis is the average of the maximum loads during the AM peak. Some trips may have no capacity, but over the entire peak period, there is capacity on the corridors.

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6 This daily transit boarding total includes King County Metro, Sound Transit and Community Transit routes. It does not include Pierce Transit routes.

Exhibit 3.4–25   2015 PM Peak Period Mode Share by Sector (Percentage)

Sector	SOV Target (2035)	SOV (2015)
Northwest Seattle	37	39
Northeast Seattle	35	37
Queen Anne/Magnolia	38	40
Downtown/Lake Union	18	23
Capitol Hill/Central District	28	33
West Seattle	35	37
Duwamish	51	54
Southeast Seattle	38	40

Note: PSRC Household Survey, 2014; Seattle 2035 Comprehensive Plan EIS Project Travel Demand Model, 2016; Fehr & Peers, 2016.

Exhibit 3.4–26   Existing Transit Crowding Ratio

BRT Route	Ratio of Existing Max Passenger Load to Crowding Threshold
C Line—West Seattle/Downtown	0.67
D Line—Ballard/Downtown	0.51
E Line—Aurora/Downtown	0.76
RR 1 (Route 12)—Madison	0.47
RR 2 (Route 120)—West Seattle/Downtown	0.50
RR 3 (Route 7)—Mt Baker/Downtown	0.28
RR 4 (Route 7 / 48)—Rainier/23rd Ave	0.28
RR 5 (Route 44)—Ballard/45th/UW	0.55
RR 6 (Route 40)—Northgate/Ballard/Westlake	0.60
RR 7 (Route 70)—Northgate/Roosevelt/Eastlake/Downtown	0.44

Source: King County Metro, 2016.

Other Metrics

Travel Times

Exhibit 3.4–27 and Exhibit 3.4–28 summarize existing auto travel times (minutes) in each direction along the study corridors. None of the study corridors currently operate at LOS F. However, ten of the corridors operate at LOS E in at least one direction, indicating traffic congestion throughout the city during the PM peak hour. Traffic congestion is more difficult for freight to navigate and trucks typically travel at slower speeds than general auto traffic. However, much of the daily freight movement activity occurs in the midday when traffic congestion is less pronounced.

Exhibit 3.4–27   Existing Corridor Travel Times

		LOS/TRAVEL TIME IN MINUTES	
Corridor ID	**Study Facility**	**NB / EB**	**SB / WB**
1	N 105th St—Greenwood Ave N to SR 522	D / 17.5	E / 20.0
2	NW 85th—32nd Ave NW to Greenwood Ave N	E / 12.5	D / 11.0
3	NW 85th St—Greenwood Ave N to SR 522	D / 11.5	E / 15.5
4	NW Market St—24th Ave NW to Stone Way N	E / 18.0	E / 20.0
5	N 45th St—Stone Way N to 25th Ave NE	E / 18.0	E / 18.5
6	E Madison St—I-5 to 23rd Ave	E / 15.0	E / 15.0
7	West Seattle Bridge—35th Ave SW to I-5	D / 8.5	D / 9.5
8	Swift Ave S—S Graham St to Seward Park Ave S	A-C / 10.0	A-C / 9.5
9	SW Roxbury St—35th Ave SW to E Marginal Way S	A-C / 16.0	A-C / 16.5
10	SR 99—N 145th St to N 80th St	E / 21.5	D / 17.5
11	SR 522—SR 523 to I-5	E / 26.0	D /17.5
12	SR 99—N 80th St to Denny Way	D / 16.5	D / 16.5
13	Roosevelt Way NE / 12th Ave NE/Eastlake Ave—NE 75th St to Denny Way	E / 32.0	E / 34.5
14	25th Ave NE—NE 75th St to S Grand St	D / 41.5	E / 48.5
15	15th Ave/Elliott Ave—Market St to Denny Way	D / 20.0	A-C / 14.5
16	California Ave SW—SW Hanford St to SW Thistle St	A-C / 15.0	D / 16.5
17	1st Ave S—S Royal Brougham Way to E Marginal Way S	D / 16.5	D / 17.0
18	Rainier Ave S—E Yesler Way to Renton Ave S	D / 34.5	D / 41.5
19	MLK Jr Way S—Rainier Ave S to S Boeing Access Rd	A-C / 22.0	A-C / 24.0

Source: Google Maps, 2017.
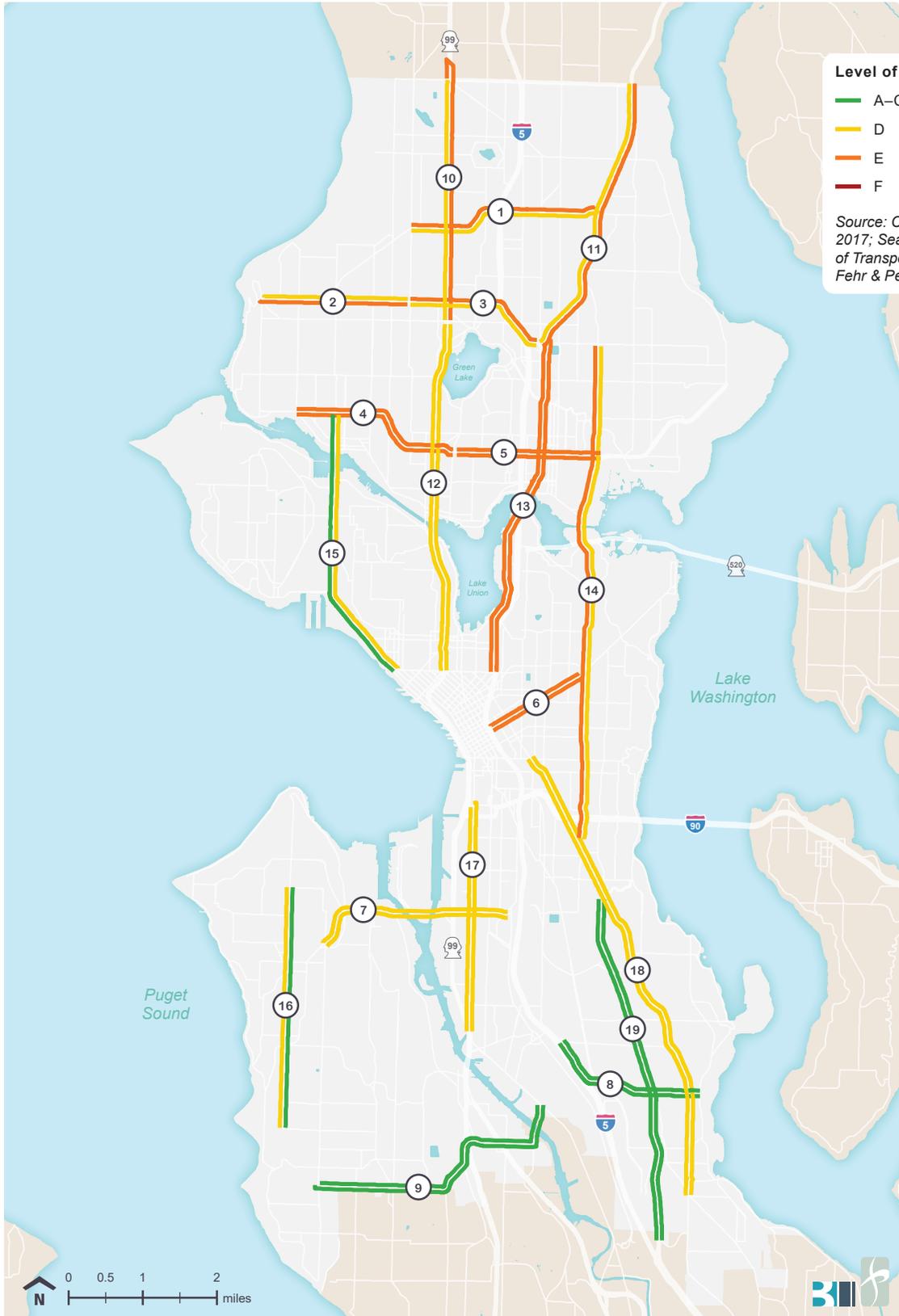
Level of Service

- A–C
- D
- E
- F

Source: City of Seattle, 2017; Seattle Department of Transportation, 2017; Fehr & Peers, 2017.

Exhibit 3.4–28   Existing Corridor Travel Times (2015)

State Facilities

Exhibit 3.4–29 summarizes the existing conditions on the state facility locations not included in the screenline analysis. Bold cells indicate that the volume-to-LOS D capacity ratio is over 1.0 meaning the facility is not meeting WSDOT's LOS standard. These include all four segments on I-5 and I-90 east of Rainier Avenue S. SR 520, which has tolling that limits demand, is currently meeting the LOS D standard, as are SR 509 and SR 519.

Exhibit 3.4–29   Existing Conditions of State Facility Analysis Locations

State Facility	Location	Daily Traffic Volume	Maximum Daily Capacity for LOS D	Volume-To-LOS D Capacity Ratio
I-5	North of NE Northgate Way	213,000	204,225	**1.04**
I-5	Ship Canal Bridge	206,000	162,015	**1.27**
I-5	North of West Seattle Bridge	242,000	194,500	**1.24**
I-5	North of Boeing Access Rd	206,000	194,500	**1.06**
I-90	East of Rainier Ave S	132,000	116,600	**1.13**
SR 509	Between S 112th St and Cloverdale St	57,000	93,100	0.61
SR 519	West of 4th Ave	28,000	32,400	0.86
SR 520	Lake Washington Bridge	68,000	77,900	0.87

Note: The WSDOT standard for all of the study facilities is LOS D. Volumes and capacities do not include express lanes on I-5 and I-90.
Source: WSDOT Community Planning Portal, 2015.

3.4.2 IMPACTS

This section describes the planning scenarios evaluated, the methodology used for the future year analysis and the results of the future year analysis. The future analysis year is 2035.

PLANNING SCENARIOS EVALUATED

Three alternatives are evaluated under future year 2035 conditions: the no action alternative and two action alternatives. The no action alternative assumes approximately 77,000 new housing units in the 2015–2035 timeframe; the action alternatives assume roughly 95,000 new housing units in the 2015–2035 timeframe, but vary in how the growth would be distributed (see Chapter 2, Exhibit 2–7). The same transportation network is assumed under each alternative.

ANALYSIS METHODOLOGY

This section summarizes the analysis methodology used to evaluate future year (2035) conditions.

Transportation Network and Land Use Assumptions

The analysis for this EIS used a citywide travel demand forecasting model to distribute and assign vehicle traffic to area roadways. The travel demand forecasting model used for the Seattle 2035 Comprehensive Plan EIS served as the starting point for this analysis, but was refined with newer data regarding trip making characteristics and 2035 network assumptions. The model is based on the PSRC regional model with refinements within the City of Seattle. More information may be found in Appendix J. Key changes to the Seattle 2035 Comprehensive Plan model include:

- Updated land use within the City based on the Seattle 2035 land use map adopted by the City Council and recent zoning changes adopted for Downtown/South Lake Union, the University District, and Uptown;

- Updated land use outside of the City based on the latest available data from PSRC;

- Updated Public Use Microdata Sample (PUMS) data from the U.S. Census Bureau which provide household characteristics for different areas within the city, including income level, household size, and number of workers; and

- Updated transit network assumptions following the passage of the ST3 ballot measure and the amended Transit Master Plan.

Key elements of the travel demand model's structure are described below:

- **Analysis Years.** This version of the model has a base year of 2015 and a horizon year of 2035.

- **Land Use.** The City of Seattle developed land use forecasts for 2015 using a combination of sources including data from the Puget Sound Regional Council, Employment Securities Department, and Office of Planning and Community Development. Land use forecasts were then developed for each of the 2035 alternatives by distributing the expected growth according to each alternative's assumed development pattern.

- **Highways and Streets.** The existing highway and major street systems within the City of Seattle are fully represented in the 2015 model; those planned to be present by 2035 are included in the 2035 model.

- **Transit.** The travel model has a full representation of the transit system under base year (2015) conditions. The horizon year transit system is based on assumptions of service from Sound Transit's 2035 travel demand model (released in September 2013), Sound Transit 3 project information for high capacity transit projects expected to open by 2035, and the Seattle Transit Master Plan.
- **Travel Costs.** The model accounts for the effects of auto operating costs, parking, transit fares and tolls (on SR 520 and SR 99) on travel demand.
- **Travel Demand.** The model predicts travel demand for seven modes of travel: drive alone, carpool (2 person), carpool (3 or more people), transit, trucks, walking and bicycling. Travel demand is estimated for five time periods. This analysis will focus on the PM peak period.

The 2035 network was modified to reflect completion of the City's transportation modal plans, thus providing a test of the City's planned infrastructure. This includes rechannelization that could occur with implementation of the City's Bicycle Master Plan. Key Transit Master Plan projects such as frequent service on priority transit corridors and dedicated bus lanes were included in the model. Detailed assumptions may be found in Appendix J. The assumptions were determined in conjunction with City staff using the best knowledge available at the time.

Consideration of Affordable Housing Characteristics

The proposed alternatives are aimed at providing additional affordable housing within the City of Seattle. To capture the varying trip-making characteristics of different income levels, the inputs to the project travel demand model were modified to reflect the proportion of affordable housing proposed under each alternative. This was completed through modifications to the PUMS household characteristic dataset.

Forecast Development

Travel demand forecasts including traffic volumes, travel times, transit trips, and mode shares, were prepared for each of the three alternatives during the PM peak period using the travel model. To reduce model error, a technique known as the "difference method" was applied for traffic volumes, travel times and mode share. Rather than take the direct output from the 2035 model, the difference method calculates the growth between the base year and 2035 models and adds that growth to existing data when available. For example, assume a road has an existing hourly volume of 500 vehicles. If the base year model showed

a volume of 400 vehicles and the future year model showed a volume of 650 vehicles, 250 vehicles would be added to the existing count for a future expected volume of 750 vehicles.

Thresholds of Significance

In an EIS, the action alternatives (Alternatives 2 and 3) are assessed against Alternative 1 No Action to identify impacts. The rationale behind this approach is to compare changes in the transportation system expected to result from City actions against transportation changes expected under "business-as-usual" conditions. Pedestrian, bicycle, safety and parking impacts are evaluated qualitatively. Thresholds of significance for other metrics used for impact identification are described below.

Screenlines

Screenlines are intended to measure the extent of traffic congestion impacts across the city. A deficiency is identified for the no action alternative if it would cause a screenline to exceed the threshold (shown in Exhibit 3.4–18).

The above criterion also applies to action alternatives provided no deficiency has been identified for the no action alternative. However, if the no action alternative already exceeds the threshold, then a potentially significant impact will only be identified if the action alternative would exceed the threshold by at least 0.01 more than the no action alternative.

Mode Share

A deficiency is identified for the no action alternative if it would cause a sector of the city to exceed its stated SOV target (see Exhibit 3.4–20).

The above criterion also applies to action alternatives provided no deficiency has been identified for the no action alternative. However, if the no action alternative exceeds the target, then a significant impact will only be identified if the action alternative exceeds the target by at least 0.5 percent more than the no action alternative.

Transit Daily Boardings

King County Metro's Long-Range Plan anticipates a doubling (a 100 percent increase) of daily bus boardings by 2040. Because this EIS looks out only to year 2035, a transit ridership increase of greater than 80 percent was selected as the threshold of significance. Therefore,

a deficiency is identified for the no action alternative if citywide transit boardings increase by more than 80 percent.

This criterion also applies to action alternatives provided no deficiency has been identified for the no action alternative. However, if the no action alternative already exceeds the threshold, then an impact will only be identified if the action alternative exceeds the threshold by at least one percentage point more than the no action alternative.

Other Metrics

Other metrics have been prepared in this analysis, including state facility v/c ratios and corridor travel times. Because the City has not adopted standards for those metrics, they are not currently used to determine significant transportation impacts. They are provided for informational purposes only.

IMPACTS COMMON TO ALL ALTERNATIVES

Pedestrian and Bicycle Network

The City has identified robust plans to improve the pedestrian and bicycle network through its *Pedestrian Master Plan*, *Bicycle Master Plan* and various subarea planning efforts. These plans are actively being implemented and are expected to continue to be implemented regardless of which land use alternative is selected. However, the prioritization and/ or phasing of projects may vary depending on the expected pattern of development.

Although Alternatives 2 and 3 would result in increased numbers of pedestrian and bicycle trips compared to the no action alternative, capacity constraints on non-motorized facilities are not expected. Therefore, given that the pedestrian and bicycle environment is expected to become more robust regardless of alternative, no significant impacts are expected to the pedestrian and bicycle system under any of the alternatives.

Safety

The City has a goal of zero traffic fatalities and serious injuries by 2030. This goal, and the policies and strategies supporting it, will be pursued regardless of the land use alternative selected. The City will continue to monitor traffic safety and take steps, as necessary, to address areas with high collision rates. It is expected that the safety program will result in decreases to the number of traffic fatalities and serious injuries over

time. The action alternatives are expected to have roughly two percent more vehicle trips than the no action alternative, which could potentially lead to an increase in the number of citywide collisions. Another main contributing factor to the number of traffic fatalities and serious injuries is speed. The travel demand model indicates that speeds throughout the network would be slightly lower under the action alternatives than under the no action alternative, which could have a beneficial effect on safety.

The minor magnitude of these safety indicators are not expected to substantively change the level of safety among the future year alternatives. Therefore, at this programmatic level of analysis, no significant impacts are expected under any of the alternatives.

Parking

The City prioritizes the use of its streets to balance competing needs, including pedestrians, bicycles, transit, autos, and freight. As stated in *Seattle 2035*, the City considers the "flex zone" along the curb to provide parking, bus stops, passenger loading, freight loading, travel lanes during peak times or other activating uses such as parklets or play streets (City of Seattle 2016, 75). Decisions about how flex zones are used will continue to evolve by location depending on the transportation and land use context of each area. It is assumed the supply of on-street parking is unlikely to increase by 2035.

As stated in the Affected Environment section, there are currently some areas of the city where on-street parking demand exceeds parking supply. Given the projected growth in the city and the fact that the supply of on-street parking is unlikely to increase by 2035, a parking deficiency is expected under the no action alternative. With the increase in development expected under Alternatives 2 and 3, particularly in urban villages which already tend to have high on-street parking utilization, parking demand will be higher than the no action alternative. Therefore, significant adverse parking impacts are expected under Alternatives 2 and 3.

The location and severity of impacts would vary by alternative depending on the concentrations of land use. The degree of the parking supply deficiency and impacts experienced in any given neighborhood would depend on factors including how much off-street parking is provided by future development projects, as well as varying conditions related to on-street parking patterns, city regulations (e.g., how many RPZ permits are issued, enforcement, etc.) within each neighborhood.

DEFICIENCIES OF ALTERNATIVE 1 NO ACTION

Metrics Used for Impact Identification

Screenlines

Exhibit 3.4–30 and Exhibit 3.4–31 summarize the projected PM peak hour volumes across each screenline in 2035. Over the next twenty years, traffic volumes are expected to increase throughout the city due to growth that would occur regardless of the proposed alternatives. Three screenlines are expected to exceed their thresholds in the PM peak hour:

- Screenline 4.11: South City Limit–Martin Luther King Jr. Way to Rainier Ave S in the southbound direction
- Screenline 5.11: Ship Canal–Ballard Bridge in the northbound direction
- Screenline 10.12: South of S Jackson St–12th Ave S to Lakeside Ave S in the southbound direction

Therefore, deficiencies under the no action alternative are expected for automobile traffic, freight, and transit at those locations.

Exhibit 3.4–30 2035 PM Peak Hour Screenline Volume-to-Capacity, Alternative 1 No Action

Screenline #	Screenline Location	LOS Standard	2015		ALTERNATIVE 1 NO ACTION	
			NB/EB	SB/WB	NB/EB	SB/WB
1.11	North City Limit—3rd Ave NW to Aurora Ave N	1.20	0.74	0.55	1.07	0.81
1.12	North City Limit—Meridian Ave N to 15th Ave NE	1.20	0.76	0.45	0.93	0.56
1.13	North City Limit—30th Ave NE to Lake City Way NE	1.20	0.92	0.60	1.14	0.78
2	Magnolia	1.00	0.48	0.62	0.54	0.64
3.11	Duwamish River—West Seattle Bridge & Spokane St	1.20	0.60	0.85	0.68	1.13
3.12	Duwamish River—1st Ave S & 16th Ave S	1.20	0.36	0.37	0.40	0.40
4.11	South City Limit—Martin Luther King Jr. Way to Rainier Ave S	1.00	0.52	0.71	0.63	1.05
4.12	South City Limit—Marine Dr SW to Meyers Way S	1.00	0.38	0.45	0.58	0.76
4.13	South City Limit—SR 99 to Airport Way S	1.00	0.29	0.47	0.46	0.81
5.11	Ship Canal—Ballard Bridge	1.20	0.99	0.55	1.27	0.74
5.12	Ship Canal—Fremont Bridge	1.20	0.88	0.63	0.97	0.80
5.13	Ship Canal—Aurora Bridge	1.20	0.81	0.62	0.95	0.84
5.16	Ship Canal—University & Montlake Bridges	1.20	0.82	0.89	0.97	1.03
6.11	South of NW 80th St—Seaview Ave NW to 15th Ave NW	1.00	0.41	0.42	0.48	0.47
6.12	South of N(W) 80th St—8th Ave NW to Greenwood Ave N	1.00	0.74	0.65	0.98	0.93
6.13	South of N(E) 80th St—Linden Ave N to 1st Ave NE	1.00	0.49	0.41	0.62	0.55
6.14	South of NE 80th St—5th Ave NE to 15th Ave NE	1.00	0.55	0.50	0.66	0.63
6.15	South of NE 80th St—20th Ave NE to Sand Point Way NE	1.00	0.47	0.45	0.62	0.55
7.11	West of Aurora Ave—Fremont Pl N to N 65th St	1.00	0.52	0.66	0.72	0.98
7.12	West of Aurora Ave—N 80th St to N 145th St	1.00	0.46	0.58	0.63	0.75
8	South of Lake Union	1.20	0.49	0.42	0.64	0.49
9.11	South of Spokane St—Beach Dr SW to W Marginal Way SW	1.00	0.40	0.50	0.48	0.67
9.12	South of Spokane St—E Marginal Way S to Airport Way S	1.00	0.50	0.52	0.64	0.72
9.13	South of Spokane St—15th Ave S to Rainier Ave S	1.00	0.43	0.59	0.61	0.91
10.11	South of S Jackson St—Alaskan Way S to 4th Ave S	1.00	0.54	0.61	0.63	0.82
10.12	South of S Jackson St—12th Ave S to Lakeside Ave S	1.00	0.52	0.59	0.83	1.01
12.12	East of CBD	1.20	0.41	0.41	0.39	0.45
13.11	East of I-5—NE Northgate Way to NE 145th St	1.00	0.62	0.58	0.74	0.74
13.12	East of I-5—NE 65th St to NE 80th St	1.00	0.54	0.50	0.61	0.63
13.13	East of I-5—NE Pacific St to NE Ravenna Blvd	1.00	0.60	0.53	0.80	0.75

Source: Fehr & Peers, 2017.

x.xx Screeline ID

Ν Screenline

Ν Screenline Above Threshold

Source: City of Seattle, 2017; Fehr & Peers, 2017.

Above threshold in northbound direction

Above threshold in southbound direction

Above threshold in southbound direction
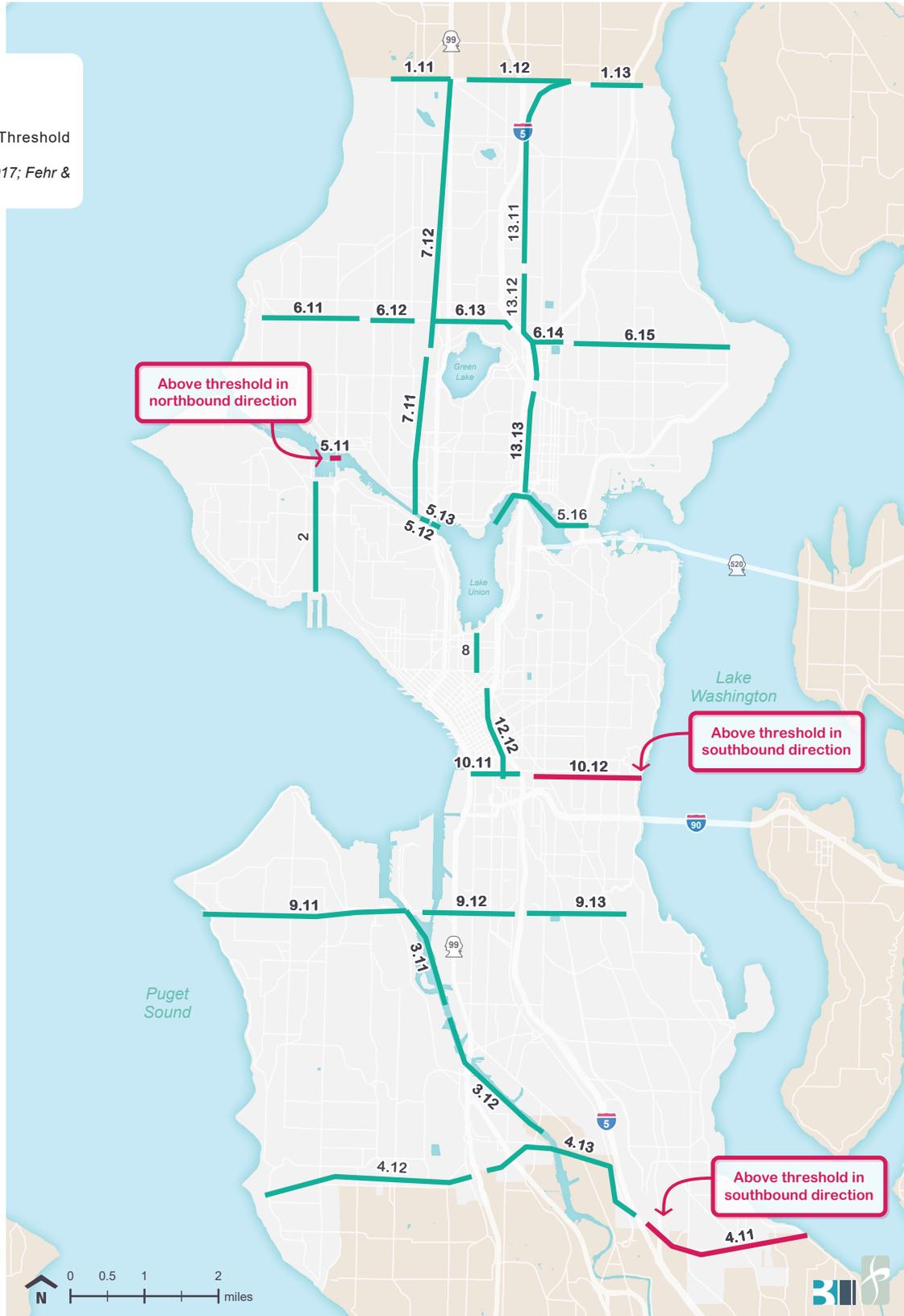
Exhibit 3.4–31   2035 Screenline V/C Ratios, All Alternatives

Mode Share

As noted in the Methodology section, the mode share estimates presented here are based on the travel demand forecasting model. By 2035, the SOV mode share is expected to decrease (a positive trend), although the amount of the decrease varies depending on the sector, as shown in Exhibit 3.4–32. Downtown/Lake Union is expected to see the highest SOV decrease of six percentage points, while West Seattle and Southeast Seattle are each projected to have a 2 percentage point decrease. All of the sectors are expected to meet the 2035 SOV target under the no action alternative.

Exhibit 3.4–32 2035 PM Peak Period Mode Share by Sector (Percentage), Alternative 1 No Action

Sector	SOV Target (2035)	Existing (2015)	Alternative 1 No Action (2035)
Northwest Seattle	37	39	36
Northeast Seattle	35	37	34
Queen Anne/Magnolia	38	40	37
Downtown/Lake Union	18	23	17
Capitol Hill/Central District	28	33	28
West Seattle	35	37	35
Duwamish	51	54	51
Southeast Seattle	38	40	38

Note: Fehr & Peers, 2017.

Transit Daily Boardings

The project model forecasts a 74 percent increase in transit boardings in Seattle under the no action alternative. Because this is lower than the 80 percent significance threshold, no deficiency is identified. Moreover, the projected increase in transit boardings from the model includes both bus and light rail, while the threshold is based on bus boardings only. Therefore, this is a very conservative assessment as much of the 74 percent increase would occur on light rail.

For informational purposes, crowding ratios were also forecasted along the ten BRT routes within the city, as shown in Exhibit 3.4–33. The results indicate that additional transit trips would operate with standing room only and others would have ridership growth beyond the crowding thresholds, particularly on the RR 2, RR 6, and RR 7 corridors. Note that the transit assumptions in the model are only estimates of the future

year routes, stops, and headways that will be in place. In practice, King County Metro continually adjusts its service to accommodate demand on the busiest corridors. Therefore, while crowding would likely occur on some routes, Metro's overall plans for increased service hours and boardings are in line with the increase in boardings expected under the no action alternative. It is reasonable to assume that Metro could add more buses to the busiest routes to accommodate some or all of the crowding identified in Exhibit 3.4–33.

Exhibit 3.4–33   2035 Transit Crowding Ratio, Alternative 1 No Action

BRT Route	PASSENGER LOAD TO CROWD THRESHOLD RATIO		Additional Riders per Peak Hour Trip
	Existing	Alternative 1 No Action (2035)	
C Line—West Seattle/Downtown	0.67	0.75	6
D Line—Ballard/Downtown	0.51	0.51	0
E Line—Aurora/Downtown	0.76	0.89	10
RR 1 (Route 12)—Madison	0.47	0.49	12
RR 2 (Route 120)—West Seattle/Downtown	0.50	**1.06**	40
RR 3 (Route 7)—Mt Baker/Downtown	0.28	0.30	0
RR 4 (Route 7 / 48)—Rainier/23rd Ave	0.28	0.30	0
RR 5 (Route 44)—Ballard/45th/UW	0.55	0.91	24
RR 6 (Route 40)—Northgate/Ballard/Westlake	0.60	**1.45**	60
RR 7 (Route 70)—Northgate/Roosevelt/Eastlake/Downtown	0.44	**1.03**	43

Note: King County Metro, Fehr & Peers, 2017.

Other Metrics

State Facilities

Exhibit 3.4–34 summarizes 2035 conditions on the state facilities not
included in the screenline analysis. Bold cells indicate that the v/c ratio is
over 1.0 meaning the facility would not meet WSDOT's LOS standard in
2035.

Exhibit 3.4–34 State Facility Analysis—2035 Volume-to-LOS
D Capacity Ratio, Alternative 1 No Action

State Facility	Location	2015	Alternative 1 No Action (2035)
I-5	North of NE Northgate Way	**1.04**	**1.22**
I-5	Ship Canal Bridge	**1.27**	**1.39**
I-5	North of West Seattle Bridge	**1.24**	**1.35**
I-5	North of Boeing Access Rd	**1.06**	**1.23**
I-90	East of Rainier Ave S	**1.13**	**1.34**
SR 509	Between S 112th St and Cloverdale St	0.61	0.84
SR 519	West of 4th Ave	0.86	0.99
SR 520	Lake Washington Bridge	0.87	**1.10**

Note: Forecasted average daily traffic volumes do not include express lane volumes on I-5 and I-90.
Source: WSDOT, 2015; Fehr & Peers, 2017.

As indicated by the rising v/c ratios, traffic is expected to increase along
the major freeway corridors between 2015 and 2035. This growth in
traffic is due in part to increased development in Seattle, but regional
and statewide growth also contribute to increased traffic on the freeways.
With this increase in traffic, six study segments are expected to exceed
WSDOT's LOS D standard under Alternative 1 No Action. SR 509 and
SR 519 are expected to meet WSDOT's LOS D standard.

Travel Time

Exhibit 3.4–35 and Exhibit 3.4–36 summarize 2035 Alternative 1 No Action
auto travel times along 19 corridors in each direction. Travel times for
2015 are also shown to illustrate how travel times would change over time
regardless of the proposed action alternatives. Note that these results also
represent freight operations which travel in the same lanes as auto traffic.
However, traffic congestion is more difficult for freight to navigate, and
trucks typically travel at slower speeds than general auto traffic.

By 2035, five study corridors are expected to drop to LOS F:

- NW 85th St between Greenwood Avenue N and SR 522;

- NW Market Street between 24th Avenue NE and Stone Way N;

- West Seattle Bridge between I-5 and 35th Ave SW;

- SR 99 between SR 523 and N 80th St; and

- SR 522 between SR 523 and I-5.

Auto travel times are expected to increase by up to 11.5 minutes between 2015 and 2035, with the largest increases projected along the westbound West Seattle Bridge, 25th Avenue NE, southbound Rainier Avenue S, and southbound MLK Jr Way S. However, travel time increases vary considerably depending on location with some corridors projected to experience very little change.

Exhibit 3.4–35   2035 Corridor Travel Times, Alternative 1 No Action

Corridor ID	Study Facility	2015 LOS/Minutes		ALT. 1 NO ACTION (2035) LOS/Minutes	
		NB / EB	SB / WB	NB / EB	SB / WB
1	N 105th St—Greenwood Ave N to SR 522	D / 17.5	E / 20.0	D / 18.0	E / 20.5
2	NW 85th—32nd Ave NW to Greenwood Ave N	E / 12.5	D / 11.0	E / 13.0	D / 11.5
3	NW 85th St—Greenwood Ave N to SR 522	D / 11.5	E / 15.5	E / 12.0	F / 16.0
4	NW Market St—24th Ave NW to Stone Way N	E / 18.0	E / 20.0	E / 19.5	F / 22.5
5	N 45th St—Stone Way N to 25th Ave NE	E / 18.0	E / 18.5	E / 19.0	E / 19.5
6	E Madison St—I-5 to 23rd Ave	E / 15.0	E / 15.0	E / 15.5	E / 15.5
7	West Seattle Bridge—35th Ave SW to I-5	D / 8.5	D / 9.5	D / 9.0	F / 15.0
8	Swift Ave S—S Graham St to Seward Park Ave S	A-C / 10.0	A-C / 9.5	A-C / 10.5	A-C / 10.0
9	SW Roxbury St—35th Ave SW to E Marginal Way S	A-C / 16.0	A-C / 16.5	A-C / 17.0	D / 20.5
10	SR 99—N 145th St to N 80th St	E / 21.5	D / 17.5	F / 26.0	E / 19.0
11	SR 522—SR 523 to I-5	E / 26.0	D /17.5	F / 31.0	D / 19.5
12	SR 99—N 80th St to Denny Way	D / 16.5	D / 16.5	E / 20.0	E / 20.0
13	Roosevelt Way NE / 12th Ave NE/Eastlake Ave—NE 75th St to Denny Way	A-C / 32.0	E / 34.5	E / 37.0	E / 38.5
14	25th Ave NE—NE 75th St to S Grand St	D / 41.5	E / 48.5	E / 47.0	E / 56.5
15	15th Ave/Elliott Ave—Market St to Denny Way	D / 20.0	A-C / 14.5	E / 24.5	A-C / 17.0
16	California Ave SW—SW Hanford St to SW Thistle St	E / 15.0	D / 16.5	D / 15.5	D / 17.0
17	1st Ave S—S Royal Brougham Way to E Marginal Way S	D / 16.5	D / 17.0	D / 17.0	E / 21.0
18	Rainier Ave S—E Yesler Way to Renton Ave S	D / 34.5	D / 41.5	D / 36.0	E / 53.0
19	MLK Jr Way S—Rainier Ave S to S Boeing Access Rd	A-C / 22.0	A-C / 24.0	A-C / 23.5	E / 33.5

Source: Google Maps, 2017; Fehr & Peers, 2017.

Level of Service

- A–C
- D
- E
- F

Source: City of Seattle, 2017; Seattle Department of Transportation, 2017; Fehr & Peers, 2017.
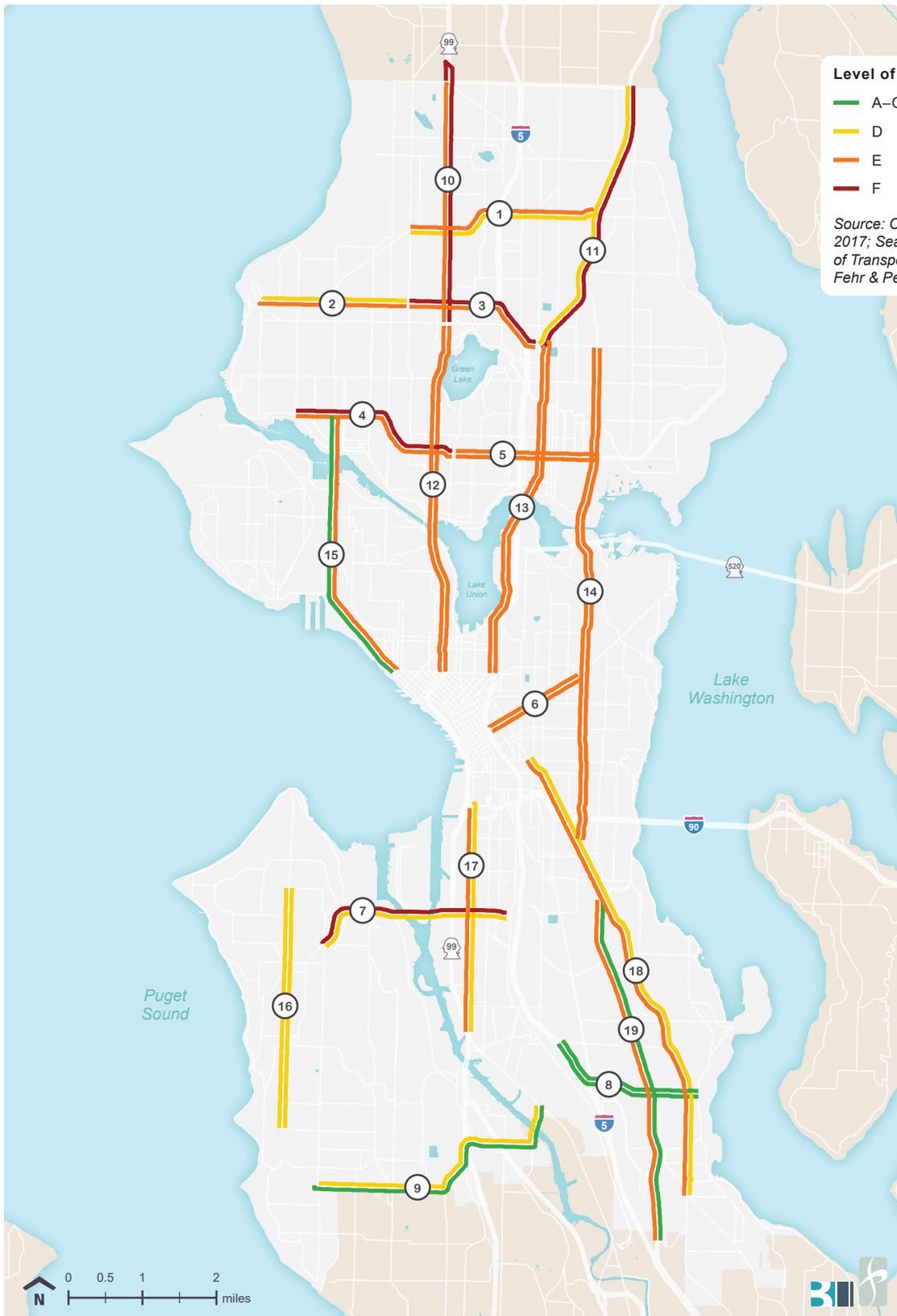
Exhibit 3.4–36   2035 Corridor Travel Times, Alternative 1 No Action

IMPACTS OF ALTERNATIVE 2

Metrics Used for Impact Identification

Screenlines

Exhibit 3.4–37 and Exhibit 3.4–31 summarize the projected PM peak hour volumes across each screenline in 2035. Alternative 2 is expected to result in modest increases in traffic volumes across some screenlines; the increased traffic results in a volume-to-capacity ratio increase of up to 0.03 depending on location. Alternative 2 is projected to result in volume-to-capacity ratios at least 0.01 higher than the no action alternative at the following screenlines:

- Screenline 4.11: South City Limit–Martin Luther King Jr. Way to Rainier Ave S in the southbound direction
- Screenline 5.11: Ship Canal–Ballard Bridge in the northbound direction
- Screenline 10.12: South of S Jackson St–12th Ave S to Lakeside Ave S in the southbound direction

Therefore, a potentially significant adverse impact is expected to automobile traffic, freight, and transit under Alternative 2.

Exhibit 3.4–37   2035 PM Peak Hour Screenline Volume-to-Capacity, Alternative 2

Screenline #	Screenline Location	LOS Standard	ALT. 1 NO ACTION (2035)		ALT. 2 (2035)	
			NB/EB	SB/WB	NB/EB	SB/WB
1.11	North City Limit—3rd Ave NW to Aurora Ave N	1.20	1.07	0.81	1.08	0.83
1.12	North City Limit—Meridian Ave N to 15th Ave NE	1.20	0.93	0.56	0.93	0.56
1.13	North City Limit—30th Ave NE to Lake City Way NE	1.20	1.14	0.78	1.14	0.78
2	Magnolia	1.00	0.54	0.64	0.54	0.65
3.11	Duwamish River—West Seattle Bridge & Spokane St	1.20	0.68	1.13	0.69	1.14
3.12	Duwamish River—1st Ave S & 16th Ave S	1.20	0.40	0.40	0.40	0.40
4.11	South City Limit—Martin Luther King Jr. Way to Rainier Ave S	1.00	0.63	1.05	0.66	1.08
4.12	South City Limit—Marine Dr SW to Meyers Way S	1.00	0.58	0.76	0.59	0.76
4.13	South City Limit—SR 99 to Airport Way S	1.00	0.46	0.81	0.47	0.81
5.11	Ship Canal—Ballard Bridge	1.20	1.27	0.74	1.28	0.75
5.12	Ship Canal—Fremont Bridge	1.20	0.97	0.80	0.98	0.81
5.13	Ship Canal—Aurora Bridge	1.20	0.95	0.84	0.96	0.85
5.16	Ship Canal—University & Montlake Bridges	1.20	0.97	1.03	0.99	1.05
6.11	South of NW 80th St—Seaview Ave NW to 15th Ave NW	1.00	0.48	0.47	0.48	0.47
6.12	South of N(W) 80th St—8th Ave NW to Greenwood Ave N	1.00	0.98	0.93	0.98	0.95
6.13	South of N(E) 80th St—Linden Ave N to 1st Ave NE	1.00	0.62	0.55	0.62	0.56
6.14	South of NE 80th St—5th Ave NE to 15th Ave NE	1.00	0.66	0.63	0.66	0.65
6.15	South of NE 80th St—20th Ave NE to Sand Point Way NE	1.00	0.62	0.55	0.62	0.56
7.11	West of Aurora Ave—Fremont Pl N to N 65th St	1.00	0.72	0.98	0.72	0.99
7.12	West of Aurora Ave—N 80th St to N 145th St	1.00	0.63	0.75	0.64	0.76
8	South of Lake Union	1.20	0.64	0.49	0.65	0.50
9.11	South of Spokane St—Beach Dr SW to W Marginal Way SW	1.00	0.48	0.67	0.49	0.67
9.12	South of Spokane St—E Marginal Way S to Airport Way S	1.00	0.64	0.72	0.65	0.72
9.13	South of Spokane St—15th Ave S to Rainier Ave S	1.00	0.61	0.91	0.62	0.91
10.11	South of S Jackson St—Alaskan Way S to 4th Ave S	1.00	0.63	0.82	0.63	0.82
10.12	South of S Jackson St—12th Ave S to Lakeside Ave S	1.00	0.83	1.01	0.84	1.02
12.12	East of CBD	1.20	0.39	0.45	0.39	0.46
13.11	East of I-5—NE Northgate Way to NE 145th St	1.00	0.74	0.74	0.74	0.74
13.12	East of I-5—NE 65th St to NE 80th St	1.00	0.61	0.63	0.61	0.64
13.13	East of I-5—NE Pacific St to NE Ravenna Blvd	1.00	0.80	0.75	0.80	0.77

Source: Fehr & Peers, 2017.

Mode Share

As shown in Exhibit 3.4–38, Alternative 2 is expected to have the same SOV mode share as Alternative 1 for all sectors and all sectors are expected to meet the 2035 SOV targets. Therefore, no mode share impacts are expected under Alternative 2.

Exhibit 3.4–38   2035 PM Peak Period Mode Share by Sector (Percentage), Alternative 2

Sector	SOV Target (2035)	Alternative 1 No Action (2035)	Alternative 2 (2035)
Northwest Seattle	37	36	36
Northeast Seattle	35	34	34
Queen Anne/Magnolia	38	37	37
Downtown/Lake Union	18	17	17
Capitol Hill/Central District	28	28	28
West Seattle	35	35	35
Duwamish	51	51	51
Southeast Seattle	38	38	38

Note: Fehr & Peers, 2017.

Transit Daily Boardings

The project model forecasts a 79 percent increase beyond existing transit boardings in Seattle under Alternative 2. Because this is lower than the 80 percent significance threshold, no impact is identified. Again, this is a conservative assessment because much of the increase would occur on light rail while the threshold is based on bus boardings only.

For informational purposes, crowding ratios were also forecasted along the ten BRT routes within the city, as shown in Exhibit 3.4–39. The results indicate that conditions along many routes would be similar to the no action alternative; however, transit rider loads would increase

on several of the routes. The largest increases would occur on RR 2 between West Seattle and Downtown, RR 5 between Ballard and UW, and RR 6 between Northgate, Ballard and Westlake.

Exhibit 3.4–39   2035 Transit Crowding Ratio, Alternative 2

BRT Route	PASSENGER LOAD TO CROWD THRESHOLD RATIO		Additional Riders per Peak Hour Trip
	Alternative 1 No Action (2035)	Alternative 2 (2035)	
C Line—West Seattle/Downtown	0.75	0.75	0
D Line—Ballard/Downtown	0.51	0.51	0
E Line—Aurora/Downtown	0.89	0.89	0
RR 1 (Route 12)—Madison	0.49	0.51	1
RR 2 (Route 120)—West Seattle/Downtown	**1.06**	**1.11**	3
RR 3 (Route 7)—Mt Baker/Downtown	0.30	0.31	1
RR 4 (Route 7 / 48)—Rainier/23rd Ave	0.30	0.30	0
RR 5 (Route 44)—Ballard/45th/UW	0.91	0.94	3
RR 6 (Route 40)—Northgate/Ballard/Westlake	**1.45**	**1.53**	7
RR 7 (Route 70)—Northgate/Roosevelt/Eastlake/Downtown	**1.03**	**1.03**	0

Note: King County Metro, Fehr & Peers, 2017.

Note that the transit assumptions in the model are only estimates of the future year routes, stops, and headways that will be in place. In practice, King County Metro continually adjusts its service planning to accommodate demand on the busiest corridors. Therefore, while crowding would likely occur on some routes, Metro's overall plans for increased service hours and boardings are in line with the increase in boardings expected under Alternative 2.

Other Metrics

State Facilities

Exhibit 3.4–40 summarizes 2035 conditions on the state facilities not included in the screenline analysis. Bold cells indicate that the v/c ratio is over 1.0 meaning the facility would not meet WSDOT's LOS standard in 2035.

Exhibit 3.4–40 State Facility Analysis—2035 Volume-to-LOS D Capacity Ratio, Alternative 2

State Facility	Location	Alt. 1 No Action (2035)	Alt. 2 (2035)
I-5	North of NE Northgate Way	**1.22**	**1.22**
I-5	Ship Canal Bridge	**1.39**	**1.41**
I-5	North of West Seattle Bridge	**1.35**	**1.35**
I-5	North of Boeing Access Rd	**1.23**	**1.23**
I-90	East of Rainier Ave S	**1.34**	**1.35**
SR 509	Between S 112th St and Cloverdale St	0.84	0.84
SR 519	West of 4th Ave	0.99	0.99
SR 520	Lake Washington Bridge	**1.10**	**1.13**

Note: Forecasted average daily traffic volumes do not include express lane volumes on I-5 and I-90.
Source: WSDOT, 2015; Fehr & Peers, 2017.

With the increase in traffic associated with Alternative 2, six study segments are expected to exceed WSDOT's LOS D standard.

Note that the difference in the v/c ratios between the no action alternative and Alternative 2 is very small, no more than 0.03 v/c. The largest differences are projected to occur along the I-5 Ship Canal Bridge and the SR 520 Lake Washington Bridge. Daily traffic fluctuations tend to be of this magnitude or larger and this difference may not be noticed by drivers.

Travel Time

Exhibit 3.4–41 and Exhibit 3.4–42 summarize 2035 auto travel times along 19 corridors for Alternative 2 compared to the no action alternative. Note that these results are also relevant for freight operations which travel in the same lanes as auto traffic. However, traffic congestion is more difficult for freight to navigate, and trucks typically travel at slower speeds than general auto traffic. Compared to the no action alternative, Alternative 2 would result in minimal changes to travel times, with all increases expected to be no more than one minute.

Exhibit 3.4–41   2035 Corridor Travel Times, Alternative 2

Corridor ID	Study Facility	ALT. 1 NO ACTION (2035) LOS/Minutes		ALT. 2 (2035) LOS/Minutes	
		NB / EB	SB / WB	NB / EB	SB / WB
1	N 105th St—Greenwood Ave N to SR 522	D / 18.0	E / 20.5	D / 18.0	E / 21.0
2	NW 85th—32nd Ave NW to Greenwood Ave N	E / 13.0	D / 11.5	E / 13.0	D / 11.5
3	NW 85th St—Greenwood Ave N to SR 522	E / 12.0	F / 16.0	E / 12.0	F / 16.0
4	NW Market St—24th Ave NW to Stone Way N	E / 19.5	F / 22.5	E / 19.5	F / 22.5
5	N 45th St—Stone Way N to 25th Ave NE	E / 19.0	E / 19.5	E / 19.51	F / 19.5
6	E Madison St—I-5 to 23rd Ave	E / 15.5	E / 15.5	E / 15.5	E / 15.5
7	West Seattle Bridge—35th Ave SW to I-5	D / 9.0	F / 15.0	D / 9.0	F / 15.5
8	Swift Ave S—S Graham St to Seward Park Ave S	A-C / 10.5	A-C / 10.0	A-C / 10.5	A-C / 10.0
9	SW Roxbury St—35th Ave SW to E Marginal Way S	A-C / 17.0	D / 20.5	A-C / 17.0	D / 20.5
10	SR 99—N 145th St to N 80th St	F / 26.0	E / 19.0	F / 26.0	E / 19.0
11	SR 522—SR 523 to I-5	F / 31.0	D / 19.5	F / 31.0	D / 19.5
12	SR 99—N 80th St to Denny Way	E / 20.0	E / 20.0	E / 20.5	E / 20.0
13	Roosevelt Way NE / 12th Ave NE/Eastlake Ave—NE 75th St to Denny Way	E / 37.0	E / 38.5	E / 37.0	E / 39.0
14	25th Ave NE—NE 75th St to S Grand St	E / 47.0	E / 56.5	E / 47.5	E / 57.0
15	15th Ave/Elliott Ave—Market St to Denny Way	E / 24.5	A-C / 17.0	E / 24.5	A-C / 17.0
16	California Ave SW—SW Hanford St to SW Thistle St	D / 15.5	D / 17.0	D / 15.5	D / 17.0
17	1st Ave S—S Royal Brougham Way to E Marginal Way S	D / 17.0	E / 21.0	D / 17.0	E / 21.5
18	Rainier Ave S—E Yesler Way to Renton Ave S	D / 36.0	E / 53.0	D / 36.5	E / 53.5
19	MLK Jr Way S—Rainier Ave S to S Boeing Access Rd	A-C / 23.5	E / 33.5	A-C / 23.5	E / 33.5

Source: Google Maps, 2017; Fehr & Peers, 2017.

Exhibit 3.4–42   2035 Corridor Travel Times, Alternative 2

IMPACTS OF ALTERNATIVE 3

Metrics Used for Impact Identification

Screenlines

Exhibit 3.4–43 and Exhibit 3.4–31 summarize the projected PM peak hour volumes across each screenline in 2035. Similar to Alternative 2, Alternative 3 is expected to result in modest increases in traffic volumes across some screenlines compared to the no action alternative. The increased traffic results in a volume-to-capacity ratio increase of up to 0.03 depending on location. Alternative 3 is projected to result in volume-to-capacity ratios at least 0.01 higher than the no action alternative at the following screenlines:

- Screenline 4.11: South City Limit–Martin Luther King Jr. Way to Rainier Ave S in the southbound direction
- Screenline 5.11: Ship Canal–Ballard Bridge in the northbound direction
- Screenline 10.12: South of S Jackson St–12th Ave S to Lakeside Ave S in the southbound direction

Therefore, a potentially significant adverse impact is expected to automobile traffic, freight, and transit under Alternative 3.

Exhibit 3.4–43   2035 PM Peak Hour Screenline Volume-to-Capacity, Alternative 3

Screenline #	Screenline Location	LOS Standard	ALT. 1 NO ACTION (2035)		ALT. 3 (2035)	
			NB/EB	SB/WB	NB/EB	SB/WB
1.11	North City Limit—3rd Ave NW to Aurora Ave N	1.20	1.07	0.81	1.07	0.83
1.12	North City Limit—Meridian Ave N to 15th Ave NE	1.20	0.93	0.56	0.92	0.56
1.13	North City Limit—30th Ave NE to Lake City Way NE	1.20	1.14	0.78	1.14	0.78
2	Magnolia	1.00	0.54	0.64	0.54	0.66
3.11	Duwamish River—West Seattle Bridge & Spokane St	1.20	0.68	1.13	0.69	1.15
3.12	Duwamish River—1st Ave S & 16th Ave S	1.20	0.40	0.40	0.40	0.40
4.11	South City Limit—Martin Luther King Jr. Way to Rainier Ave S	1.00	0.63	1.05	0.66	1.08
4.12	South City Limit—Marine Dr SW to Meyers Way S	1.00	0.58	0.76	0.59	0.76
4.13	South City Limit—SR 99 to Airport Way S	1.00	0.46	0.81	0.48	0.81
5.11	Ship Canal—Ballard Bridge	1.20	1.27	0.74	1.29	0.75
5.12	Ship Canal—Fremont Bridge	1.20	0.97	0.80	0.98	0.81
5.13	Ship Canal—Aurora Bridge	1.20	0.95	0.84	0.97	0.85
5.16	Ship Canal—University & Montlake Bridges	1.20	0.97	1.03	1.00	1.05
6.11	South of NW 80th St—Seaview Ave NW to 15th Ave NW	1.00	0.48	0.47	0.48	0.47
6.12	South of N(W) 80th St—8th Ave NW to Greenwood Ave N	1.00	0.98	0.93	0.99	0.96
6.13	South of N(E) 80th St—Linden Ave N to 1st Ave NE	1.00	0.62	0.55	0.62	0.57
6.14	South of NE 80th St—5th Ave NE to 15th Ave NE	1.00	0.66	0.63	0.66	0.66
6.15	South of NE 80th St—20th Ave NE to Sand Point Way NE	1.00	0.62	0.55	0.62	0.57
7.11	West of Aurora Ave—Fremont Pl N to N 65th St	1.00	0.72	0.98	0.72	1.00
7.12	West of Aurora Ave—N 80th St to N 145th St	1.00	0.63	0.75	0.63	0.77
8	South of Lake Union	1.20	0.64	0.49	0.64	0.49
9.11	South of Spokane St—Beach Dr SW to W Marginal Way SW	1.00	0.48	0.67	0.50	0.67
9.12	South of Spokane St—E Marginal Way S to Airport Way S	1.00	0.64	0.72	0.65	0.72
9.13	South of Spokane St—15th Ave S to Rainier Ave S	1.00	0.61	0.91	0.62	0.91
10.11	South of S Jackson St—Alaskan Way S to 4th Ave S	1.00	0.63	0.82	0.63	0.82
10.12	South of S Jackson St—12th Ave S to Lakeside Ave S	1.00	0.83	1.01	0.84	1.02
12.12	East of CBD	1.20	0.39	0.45	0.39	0.46
13.11	East of I-5—NE Northgate Way to NE 145th St	1.00	0.74	0.74	0.74	0.76
13.12	East of I-5—NE 65th St to NE 80th St	1.00	0.61	0.63	0.61	0.65
13.13	East of I-5—NE Pacific St to NE Ravenna Blvd	1.00	0.80	0.75	0.81	0.77

Source: Fehr & Peers, 2017.

Mode Share

As shown in Exhibit 3.4–44, Alternative 3 is expected to have the same SOV mode share as Alternative 1 for all sectors and all sectors are expected to meet the 2035 SOV targets. Therefore, no mode share impacts are expected under Alternative 3.

Exhibit 3.4–44   2035 PM Peak Period Mode Share by Sector (Percentage), Alternative 3

Sector	SOV Target (2035)	Alternative 1 No Action (2035)	Alternative 3 (2035)
Northwest Seattle	37	36	36
Northeast Seattle	35	34	34
Queen Anne/Magnolia	38	37	37
Downtown/Lake Union	18	17	17
Capitol Hill/Central District	28	28	28
West Seattle	35	35	35
Duwamish	51	51	51
Southeast Seattle	38	38	38

Note: Fehr & Peers, 2017.

Transit Daily Boardings

The project model forecasts a 79 percent increase beyond existing transit boardings in Seattle under Alternative 3. Because this is lower than the 80 percent significance threshold, no impact is identified. Again, this is a conservative assessment because much of the increase would occur on light rail while the threshold is based on bus boardings only.

For informational purposes, crowding ratios were also forecasted along the ten BRT routes within the city, as shown in Exhibit 3.4–45. The results indicate that conditions along many routes would be similar to the no action alternative; however, transit rider loads would increase on several of the routes. The largest increases would occur on RR 2 between West Seattle and Downtown, RR 5 between Ballard and UW, RR 6 between Northgate, Ballard and Westlake, and RR7 between Northgate, Roosevelt, Eastlake, and Downtown.

Exhibit 3.4–45 2035 Transit Crowding Ratio, Alternative 3

BRT Route	PASSENGER LOAD TO CROWD THRESHOLD RATIO		Additional Riders per Peak Hour Trip
	Alternative 1 No Action (2035)	Alternative 3 (2035)	
C Line—West Seattle/Downtown	0.75	0.77	2
D Line—Ballard/Downtown	0.51	0.51	0
E Line—Aurora/Downtown	0.89	0.89	0
RR 1 (Route 12)—Madison	0.49	0.50	1
RR 2 (Route 120)—West Seattle/Downtown	**1.06**	**1.11**	3
RR 3 (Route 7)—Mt Baker/Downtown	0.30	0.31	1
RR 4 (Route 7 / 48)—Rainier/23rd Ave	0.30	0.30	0
RR 5 (Route 44)—Ballard/45th/UW	0.91	0.97	5
RR 6 (Route 40)—Northgate/Ballard/Westlake	**1.45**	**1.59**	12
RR 7 (Route 70)—Northgate/Roosevelt/Eastlake/Downtown	**1.03**	**1.10**	5

Note: King County Metro, Fehr & Peers, 2017.

Note that the transit assumptions in the model are only estimates of the future year routes, stops, and headways that will be in place. In practice, King County Metro continually adjusts its service planning to accommodate demand on the busiest corridors. Therefore, while crowding would likely occur on some routes, Metro's overall plans for increased service hours and boardings are in line with the increase in boardings expected under Alternative 3.

Other Metrics

State Facilities

Exhibit 3.4–46 summarizes 2035 conditions on the state facilities not included in the screenline analysis. Bold cells indicate that the v/c ratio is over 1.0 meaning the facility would not meet WSDOT's LOS standard in 2035.

Exhibit 3.4–46   State Facility Analysis—2035 Volume-to-LOS D Capacity Ratio, Alternative 3

State Facility	Location	Alt. 1 No Action (2035)	Alt. 3 (2035)
I-5	North of NE Northgate Way	**1.22**	**1.22**
I-5	Ship Canal Bridge	**1.39**	**1.41**
I-5	North of West Seattle Bridge	**1.35**	**1.35**
I-5	North of Boeing Access Rd	**1.23**	**1.23**
I-90	East of Rainier Ave S	**1.34**	**1.35**
SR 509	Between S 112th St and Cloverdale St	0.84	0.84
SR 519	West of 4th Ave	0.99	0.99
SR 520	Lake Washington Bridge	**1.10**	**1.13**

Note: Forecasted average daily traffic volumes do not include express lane volumes on I-5 and I-90.
Source: WSDOT, 2015; Fehr & Peers, 2017.

With the increase in traffic associated with Alternative 3, six study segments are expected to exceed WSDOT's LOS D standard.

Note that the difference in the v/c ratios between the no action alternative and Alternative 3 is very small, no more than 0.03 v/c. The largest differences are projected to occur along the I-5 Ship Canal Bridge and the SR 520 Lake Washington Bridge. Daily traffic fluctuations tend to be of this magnitude or larger and this difference may not be noticed by drivers.

Travel Time

Exhibit 3.4–47 and Exhibit 3.4–48 summarize 2035 auto travel times along 19 corridors for Alternative 3 compared to the no action alternative. Again, these results are relevant for freight operations which travel in the same lanes as auto traffic. However, traffic congestion is more difficult for freight to navigate, and trucks typically travel at slower speeds than

general auto traffic. As with Alternative 2, the travel time increases under Alternative 3 are expected to be minimal compared to the no action alternative. All increases are expected to be no more than one minute.

Exhibit 3.4–47 2035 Corridor Travel Times, Alternative 3

Corridor ID	Study Facility	ALT. 1 NO ACTION (2035) LOS/Minutes		ALT. 3 (2035) LOS/Minutes	
		NB / EB	SB / WB	NB / EB	SB / WB
1	N 105th St—Greenwood Ave N to SR 522	D / 18.0	E / 20.5	D / 18.0	E / 20.5
2	NW 85th—32nd Ave NW to Greenwood Ave N	E / 13.0	D / 11.5	E / 13.0	D / 11.5
3	NW 85th St—Greenwood Ave N to SR 522	E / 12.0	F / 16.0	E / 12.0	F / 16.0
4	NW Market St—24th Ave NW to Stone Way N	E / 19.5	F / 22.5	E / 19.5	F / 22.5
5	N 45th St—Stone Way N to 25th Ave NE	E / 19.0	E / 19.5	E / 19.5	F / 20.0
6	E Madison St—I-5 to 23rd Ave	E / 15.5	E / 15.5	E / 15.5	E / 15.5
7	West Seattle Bridge—35th Ave SW to I-5	D / 9.0	F / 15.0	D / 9.0	F / 15.5
8	Swift Ave S—S Graham St to Seward Park Ave S	A-C / 10.5	A-C / 10.0	A-C / 10.5	A-C / 10.0
9	SW Roxbury St—35th Ave SW to E Marginal Way S	A-C / 17.0	D / 20.5	A-C / 17.0	D / 20.5
10	SR 99—N 145th St to N 80th St	F / 26.0	E / 19.0	F / 26.0	E / 19.0
11	SR 522—SR 523 to I-5	F / 31.0	D / 19.5	F / 31.0	D / 19.5
12	SR 99—N 80th St to Denny Way	E / 20.0	E / 20.0	E / 21.0	E / 20.0
13	Roosevelt Way NE / 12th Ave NE/Eastlake Ave—NE 75th St to Denny Way	E / 37.0	E / 38.5	E / 37.5	E / 39.0
14	25th Ave NE—NE 75th St to S Grand St	E / 47.0	E / 56.5	E / 47.5	E / 57.5
15	15th Ave/Elliott Ave—Market St to Denny Way	E / 24.5	A-C / 17.0	E / 25.0	A-C / 17.0
16	California Ave SW—SW Hanford St to SW Thistle St	D / 15.5	D / 17.0	D / 15.5	D / 17.0
17	1st Ave S—S Royal Brougham Way to E Marginal Way S	D / 17.0	E / 21.0	D / 17.0	E / 21.0
18	Rainier Ave S—E Yesler Way to Renton Ave S	D / 36.0	E / 53.0	D / 36.5	E / 53.5
19	MLK Jr Way S—Rainier Ave S to S Boeing Access Rd	A-C / 23.5	E / 33.5	A-C / 23.5	E / 33.5

Source: Google Maps, 2017; Fehr & Peers, 2017.

Level of Service
— A–C
— D
— E
— F

Source: City of Seattle, 2017; Seattle Department of Transportation, 2017; Fehr & Peers, 2017.
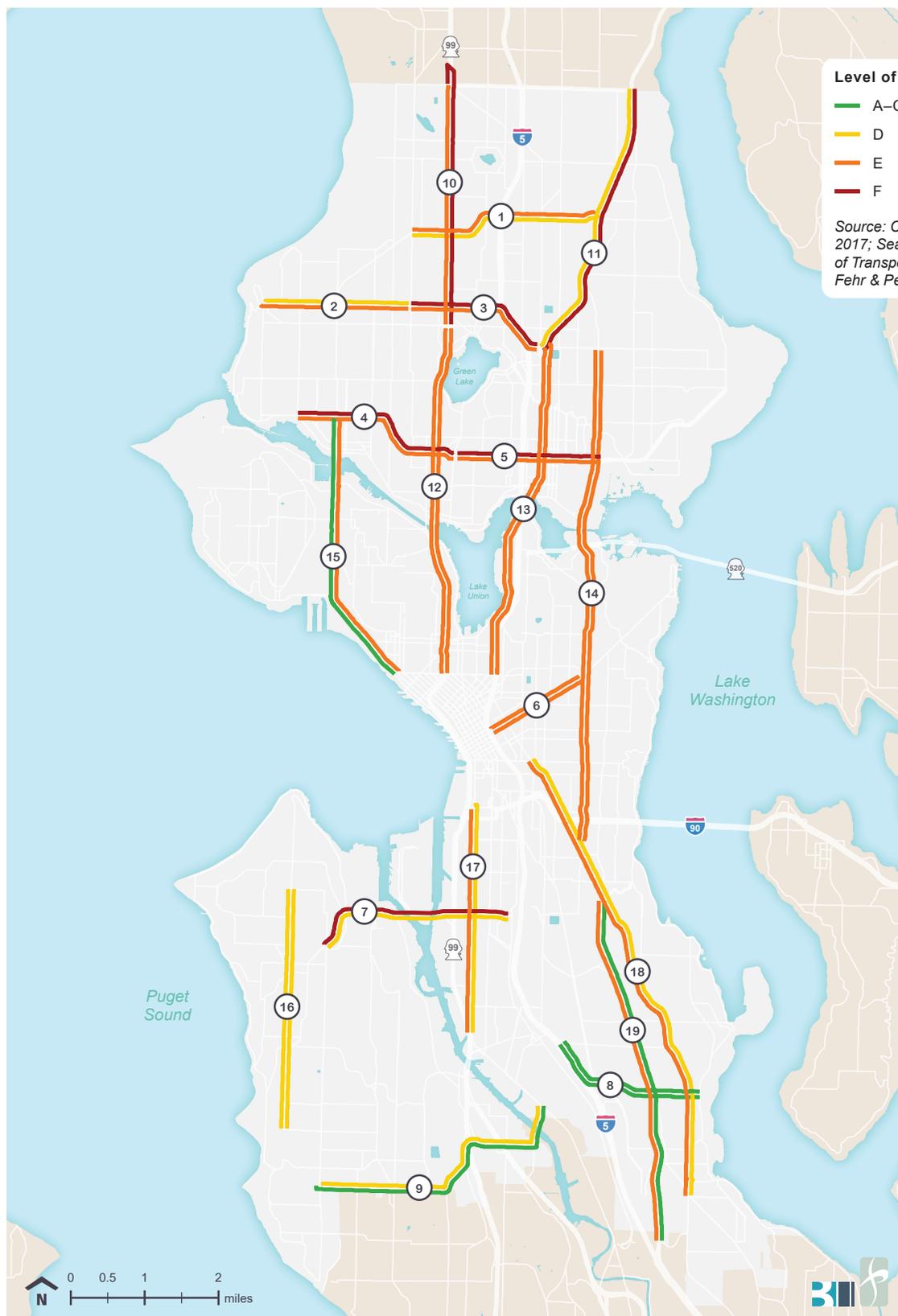
Exhibit 3.4–48   2035 Corridor Travel Times, Alternative 3

SUMMARY OF IMPACTS

Exhibit 3.4–49 summarizes the impacts for each alternative. Note that the table only includes the metrics used for impact identification.

Exhibit 3.4–49 Summary of Transportation Impacts

Sector	Alternative 1 No Action (2035)	Alternative 2 (2035)	Alternative 3 (2035)
Screenline (Auto, Freight, and Transit)	Potentially	Potentially	Potentially
Mode Share	No	No	No
Transit Daily Boardings	No	No	No
Pedestrian and Bicycle	No	No	No
Safety	No	No	No
Parking	Yes	Yes	Yes

Note: Fehr & Peers, 2017.

3.4.3 MITIGATION MEASURES

Seattle is committed to investing in the City's transportation system to improve access and mobility for residents and workers and to reduce the potential severity of transportation impacts identified above. Reducing the share of SOV travel is key to Seattle's transportation strategy. Lower SOV mode share would not only reduce screenline and parking demand impacts; it is consistent with numerous other goals and policies in the Comprehensive Plan. From a policy perspective, the City has prioritized reducing vehicular demand rather than increasing operating capacity.

This section identifies a range of potential mitigation strategies that could be implemented to help reduce the severity of the adverse impacts identified in the previous section. These include impacts that would affect screenlines and parking.

INCORPORATED PLAN FEATURES

The City of Seattle is currently working on numerous strategies to support non-SOV travel modes and this increase the overall efficiency of the transportation system for all Seattle residents and employees. These strategies would be executed regardless of which land use alternative is chosen and are therefore incorporated into all three alternatives.

- **Improving the Pedestrian and Bicycle Network:** The City has developed a citywide Pedestrian Master Plan (PMP) and citywide Bicycle Master Plan (BMP) along with other subarea plans focused on particular neighborhoods. These plans and documents include myriad projects that, if implemented, would improve the pedestrian and bicycle environment. SDOT also has ongoing safety programs that are aimed at reducing the number of collisions, benefiting both safety and reliability of the transportation system.

- **Implementing Transit Speed and Reliability Improvements:** The Seattle Transit Master Plan (TMP) has identified numerous projects, including Intelligent Transportation Systems (ITS), to improve transit speed and reliability throughout the city.

- **Implementing Actions Identified in the Freight Master Plan:** The City is recently prepared a revised Freight Master Plan, including measures to increase freight accessibility and travel time reliability. These projects could be implemented on key freight corridors to improve conditions for goods movement.

- **Expanding Travel Demand Management and Parking Strategies:** Managing demand for auto travel is an important element of reducing overall congestion impacts that affect auto, freight, transit and parking demand. There are well-established travel demand management programs in place, including Transportation Management Programs (TMPs) and the State's Commute Trip Reduction (CTR) program which could be expanded to include new parking-related strategies. CTR and TMP programs could evolve substantially toward smaller employer, residential buildings and other strategies (CTR and TMPs are now largely focused on large employers).

- **Working With Partner Agencies:** WSDOT, King County Metro, Sound Transit and PSRC all provide important transportation investments and facilities for the City of Seattle. The City has a long history of working with these partner agencies to expand multimodal access to and within the City. The City should continue to work with these agencies. Key issue areas include regional roadway pricing and increased funding for transit operations.

The incorporated transportation improvement features are discussed in more detail below. It should be noted that some projects could have secondary impacts. For example, converting a general purpose travel lane to a transit lane or a cycle track would reduce capacity for autos. As required, the City would prepare additional analysis before implementing specific transportation improvement projects. Given the programmatic

nature of this study, this EIS simply lists the types of projects that could be considered to mitigate potential secondary impacts.

Pedestrian and Bicycle System Improvements

Improvements to the pedestrian and bicycle system would provide a better connected and safer walking and riding environment, thereby encouraging travelers to choose walking or biking rather than driving. There is a well-documented link between improved, safer bicycle and pedestrian accessibility and reduced demand for vehicle travel (CAPCOA 2010).

• Specific projects and/or high priority areas for improvement may be found in the City's adopted Pedestrian and Bicycle Master Plans.

• Development codes could also be modified to include requirements for wider sidewalks, particularly along greenways and green streets, to promote walking and bicycling.

• In conjunction with other funding sources, new private and public development could pay for a share of PMP and BMP improvements.

Speed and Reliability Improvements

Transit and freight travel times could be reduced by providing targeted speed and reliability improvements on key routes frequented by transit and freight. The *Transit Master Plan* identifies such improvements throughout the city. The City's Freight Master Plan identifies near- and long-term improvements that would benefit freight mobility. In conjunction with other funding sources, new development could pay for a share of improvements on key routes. Some of the transit improvements could be funded through the passage of 2014's Proposition 1 or similar future funding measures.

Travel Demand Management and Parking Strategies

The City of Seattle currently has travel demand management programs in place including strategies outlined in the transportation modal plans: the Pedestrian Master Plan, the Bicycle Master Plan and the Transit Master Plan. In addition, the City could consider enhancing the travel demand management programs already in place. Research by the California Air Pollution Control Officers Association (CAPCOA), which is composed of air quality management districts in that state, has shown that implementation of travel demand management programs can substantially reduce vehicle trip generation, which in turn reduces

congestion for transit, freight and autos. The specific measures described below are all potential projects that the City could consider to modify or expand current strategies:

- Parking maximums that would limit the number of parking spaces which can be built with new development.
- Review the parking minimums currently in place for possible revisions.
- Unbundling of parking to separate parking costs from total property cost, allowing buyers or tenants to forgo buying or leasing parking spaces.
- Increased parking taxes/fees.
- Review and revise transit pass provision programs for employees.
- Encourage or require transit pass provision programs for residents—King County Metro has a Passport program for multifamily housing that is similar to its employer-based Passport program. The program discounts transit passes purchased in bulk for residences of multifamily properties.

The City could also consider encouraging or requiring parking operators to upgrade their parking revenue control systems (PARC) to the latest hardware and software technology so it could be incorporated into an electronic guidance system, compatible with the e-Park program that is currently operating Downtown. This technology would help direct drivers to off-street parking facilities with available capacity. The City could also continue to manage on-street paid parking through existing programs and refine them to redefine subareas and manage them with time-of-day pricing and paid parking to new areas.

In the absence of a new ITS parking program, the City is expected to continue managing on-street paid parking through SDOT's Performance-Based Parking Program which evaluates data to determine if parking rates, hours of operation and/or time limits could be adjusted to achieve the City's goal of one to two available spaces per block face throughout the day.

The City could also consider establishing new subarea transportation management partnership organizations to provide programs, services and strategies to improve access to employment and residences while decreasing the SOV rate, particularly during peak periods. This could include partnerships with transit providers. Local Transportation Management Associations (TMAs) could provide some of these services. Programs like the state's Growth and Transportation Efficiency Center (GTEC) or the City's Business Improvement Area (BIA) are possible

models for future funding sources. The programs could include features of relevant programs such as Seattle Center City's Commute Seattle, Whatcom County's SmartTrip or Tacoma's Downtown on the Go programs.

The City could consider updating municipal code and/or Director's Rules related to Transportation Management Plans required for large buildings to include transportation demand management measures that are most effective in reaching the City's mode share goals. This may include membership in a TMA and discounted or free transit passes and/or car share and bike share memberships. For residential buildings, the City could also consider extending Transportation Management Plans or requiring travel options programs (such as Green Trips in Oakland, CA and Residential Services in Arlington, VA).

The City could seek to improve monitoring of the parking occupancy and RPZs to determine if changes are necessary. These changes could include splitting existing RPZs into multiple zones, adding new RPZs or adjusting RPZ boundaries. The City could also review the RPZ program and its policies in areas that are oversubscribed (where there are more permits issued than parking spaces).

Potential Mitigation Measure Implementation

Funding for mitigation projects could come from a variety of sources. One way to generate additional funding would be a citywide development impact fee program that could include monitoring, project prioritization and use of collected fees to construct street system projects. The program could emulate practices used in the existing South Lake Union and Northgate Voluntary Impact Fee Programs. This type of program would require additional analysis to identify needed projects and a fee schedule before it could be implemented. Most cities in Washington State have a transportation impact fee program to fund transportation capacity projects.

OTHER PROPOSED MITIGATION MEASURES

Potential mitigation measures for the three potential screenline impacts are discussed here:

Screenline 4.11—South City Limit from Martin Luther King Jr. Way to Rainier Ave S

Screenline 4.11 along the south city limit from Martin Luther King Jr. Way to Rainier Ave S is expected to potentially exceed its threshold under the no action alternative and both action alternatives. The following

mitigation measures could be implemented to reduce the significance of this potential impact:

- Purchase additional bus service from King County Metro along affected corridors.
- Strengthen TDM requirements for new development to reduce SOV trips, specifically in areas in the Rainier Valley.
- Increase the screenline threshold from 1.0 to 1.2 to acknowledge the City is willing to accept higher congestion levels in this area. A screenline threshold of 1.2 is consistent with other higher density areas of the city.

Screenline 5.11—Ballard Bridge

Screenline 5.11 across the Ballard Bridge is expected to potentially exceed its threshold under the no action alternative and both action alternatives. The following specific mitigation measures could be implemented to reduce the significance of this potential impact:

- Continue ongoing monitoring of volumes across the Ballard Bridge and complete a feasibility study of a bridge replacement (or new Ship Canal crossing) with increased non-auto capacity if ongoing traffic monitoring identifies a substantial increase in PM peak hour traffic volumes across the bridge.
- Purchase additional bus service from King County Metro along the 15th Ave NW corridor.
- Strengthen TDM requirements for new development to reduce SOV trips, particularly in the Ballard, Crown Hill, and Greenwood urban villages.

Screenline 10.12—South of S Jackson St from 12th Ave S to Lakeside Ave S

Screenline 10.12 along S Jackson Street from 12th Ave S to Lakeside Ave S is expected to potentially exceed its threshold under the no action alternative and both action alternatives. The following mitigation measures could be implemented to reduce the significance of this potential impact:

- Purchase additional bus service from King County Metro along affected corridors.
- Strengthen TDM requirements for new development to reduce SOV trips, particularly in the Capitol Hill, First Hill, and Central District areas.
- Increase the screenline threshold from 1.0 to 1.2 to acknowledge the City is willing to accept higher congestion levels in this area. A screenline threshold of 1.2 is consistent with other higher density areas of the city.

3.4.4 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

Travel demand and associated congestion is expected to increase over time regardless of the alternative pursued. In addition to citywide transportation capacity improvements that are largely focused on improved transit, bicycle, pedestrian, and freight connections, the City will manage demand using policies, programs, and investments aimed at shifting travel to non-SOV modes. However, city streets will remain congested during peak periods as growth continues to occur. With respect to the two action alternatives studied in this Draft EIS, potentially significant adverse impacts are identified for screenline volumes and on-street parking

The parking impacts are anticipated to be brought to a less-than-significant level by implementing a range of possible mitigation strategies such as those discussed in 3.4.3 Mitigation Measures. While there may be short-term impacts as individual developments are completed (causing on-street parking demand to exceed supply), it is expected that over the long term with expanded paid parking zones, revised RPZ permitting, more sophisticated parking availability metrics, and continued expansion of non-auto travel options, the on-street parking situation will reach a new equilibrium. Therefore, no significant unavoidable adverse impacts to parking are expected.

Potential mitigation measures for the three screenlines impacted by the action alternatives have been proposed. If one or more of those measures are implemented, it is expected that the impact could be brought to a less-than-significant level. Therefore, no significant unavoidable impacts to screenlines are expected.

3.5

HISTORIC RESOURCES.

This chapter provides analysis of potential impacts to historic resources and cultural resources in the study area. Historic and cultural resources exist belowground and aboveground and can be archaeological sites, buildings, structures, or objects. Historic and cultural resources can be designated/listed, recommended eligible for listing, or determined eligible for listing on federal or local historic registers. Historic and cultural resources that are not listed or lack eligibility recommendation and determination can be qualified for consideration of their potential historic significance due to their age. In the City of Seattle, the minimum age threshold for a property to be considered historic is 25 years.

3.5.1 AFFECTED ENVIRONMENT

Since first incorporated in 1869, Seattle has expanded over time through charter amendments and annexation (City of Seattle, 1986; Phelps, 1978). The historic pattern of development within the study area has generally been outward from the Central Business District, with the earliest neighborhoods developing in chartered expansion areas. These areas contain today's First Hill-Capitol Hill, 23rd & Union-Jackson, Eastlake, and Madison-Miller urban villages, which were added between 1869 and 1886.

By the 1890s, numerous small neighborhoods had formed outside of downtown, located along transportation routes and near commercial sites such as lumber mills (US Geological Survey, 1895). Following the establishment of a street car system, areas once considered remote became accessible and were soon platted for residential development. The City's first annexation occurred in 1891 when seven of today's designated urban villages were incorporated into city limits: Greenwood-Phinney Ridge, Fremont, Green Lake, Roosevelt, Upper Queen Anne, Wallingford, and University Community. In 1907 eleven more urban villages in the study area were annexed: Ballard, Ravenna, Columbia City, North Beacon Hill, North Rainier, Rainier Beach, South Park, and all of West Seattle (now the Admiral,

Morgan Junction, and Westwood-Highland Park urban villages). Later annexations occurred in 1910, the 1940s, the 1950s, 1978, and 1986. The most recently annexed urban villages in the study area are Aurora-Licton Springs, Bitter Lake Village, Crown Hill, Northgate, and Lake City, all of which were annexed in the 1950s.

Some of Seattle's historic building fabric has been preserved through creation of historic districts. The City of Seattle's Historic Preservation Program manages eight designated Seattle historic districts: Ballard Avenue, Columbia City, Fort Lawton, Harvard-Belmont, International District, Pike Place Market, Pioneer Square, and Sand Point. These districts overlap with the study area urban villages of Ballard, Columbia City, and First Hill-Capitol Hill. Proposed expansion areas are abutting the boundaries of Ballard Avenue, Columbia City, Harvard-Belmont, and Sand Point historic districts. The study area also contains individual historic properties that are designated Seattle Landmarks. These are located throughout the study area. However, not all properties within the study area have been systematically inventoried for their potential eligibility. Therefore, it is likely that the study area contains additional properties that could meet the criteria for designation as a Seattle Landmark.

There are seven National Register historic districts within the Urban Villages or proposed expansions areas. These are Ballard Avenue Historic District, Naval Air Station (Sand Point), Chittenden Locks and Lake Washington Ship Canal, Montlake Historic District, Lake Washington Boulevard, Harvard-Belmont District, and the Columbia City Historic District. There are additional National Register historic districts abutting the study area. The study area also contains historic properties that are listed in, and that have been determined eligible for listing in, the National Register of Historic Places (NRHP). Properties that have been determined eligible are show below in Exhibit 3.5–1 and Exhibit 3.5–2. These properties are located throughout the study area. It is important to note that not all properties within the study area have been systematically inventoried for their potential eligibility. Therefore, it is likely that the study area contains additional properties that meet the criteria for being determined eligible for listing in the NRHP, but which have not yet been inventoried. Alternative 2 and 3 contain nearly the same amount of total determined-eligible properties, however the distribution of these among the urban village categories and proposed rezoning tiers differ by alternative.

Exhibit 3.5–1   NHRP Determined Eligible Historic Properties, Alternative 2

Displacement and Access	M	M1	M2	Total
High Displacement Risk & Low Access to Opportunity	3	0	0	3
Low Displacement Risk & High Access to Opportunity	31	16	2	49
High Displacement Risk & High Access to Opportunity	23	26	0	49
Low Displacement Risk & Low Access to Opportunity	3	0	0	3
	60	42	2	104

Source: Department of Archaeology and Historic Preservation, 2017.

Exhibit 3.5–2   NHRP Determined Eligible Historic Properties, Alternative 3

Displacement and Access	M	M1	M2	Total
High Displacement Risk & Low Access to Opportunity	3	0	0	3
Low Displacement Risk & High Access to Opportunity	12	34	4	50
High Displacement Risk & High Access to Opportunity	40	9	0	49
Low Displacement Risk & Low Access to Opportunity	3	0	0	3
	58	43	4	105

Source: Department of Archaeology and Historic Preservation, 2017.

The City had, until recently, an ongoing effort to conduct historic resource surveys by neighborhood and class of building and results are available in a City-managed database. Survey efforts began in the 1970s but were not systematically conducted until the 2000s. Currently, 11 neighborhoods in the study area have been systematically inventoried. In addition, a systematic survey has been completed of neighborhood commercial districts (Sheridan, 2002), residential properties built before 1906 (Lange and Veith, 2009), and City-owned properties (Wickwire, 2001) in the study area. These surveys added buildings to the database from all of the urban villages in the study area with the exception of Lake City. While nearly all urban villages have properties listed in the database, 17 of the neighborhoods have yet to be systematically inventoried (Exhibit 3.5–5).

Exhibit 3.5–3   NRHP Determined Eligible Properties—North

Legend:

- ● NRHP Determined Eligible Property

Urban Centers/Villages
- ⬚ In MHA Study Area
- ☐ Outside MHA Study Area

Potential Expansion Areas
- ▭ Alternative 2
- ▭ Alternative 3

Note: Ravenna is the area in the University Community Urban Center that is inside the study area.

Source: DAHP, 2017; ESA, 2017.
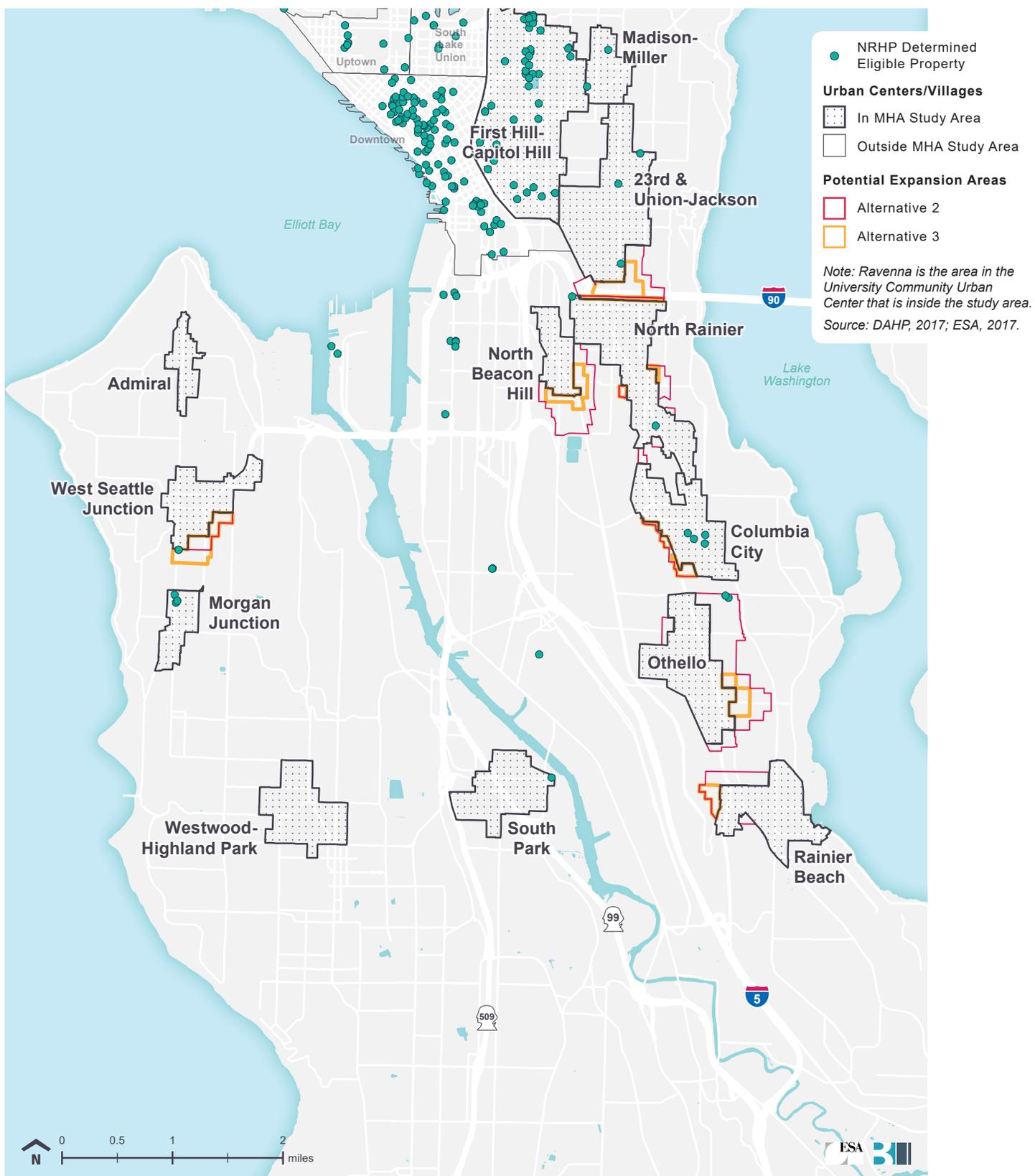
Exhibit 3.5–4   NRHP Determined Eligible Properties—South

Exhibit 3.5–5   Historic Resources Survey Status

Urban Village	Properties Listed in Historic Resources Survey Database	Systematic Inventory Conducted	Historic Context Statement Prepared
23rd & Union-Jackson	X	X *(part of Central Area Survey)*	X
Admiral	X	—	
Aurora-Licton Springs	X	—	
Ballard	X	—	
Bitter Lake Village	X	—	
Columbia City	X	X	X
Crown Hill	X	—	
Eastlake	X	—	
First Hill-Capitol Hill	X	—	
Fremont	X	X	X
Green Lake	X	—	
Greenwood-Phinney Ridge	X	—	
Lake City	—	—	
Madison-Miller	X	X *(part of Central Area Survey)*	
Morgan Junction	X	—	
North Beacon Hill	X	X	
North Rainier	X	X	X
Northgate	X	—	
Othello/MLK @ Holly Street	X	—	
Rainier Beach	X	—	
Ravenna	X	—	
Roosevelt	X	—	
South Park	X	X	X
University Community	X	X	
Upper Queen Anne	X	X	X
Wallingford	X	X	X
West Seattle Junction*	X	X	X
Westwood-Highland Park	X	—	—

Independent survey undertaken by West Seattle Junction Historical Survey Group.

Source: ESA, 2017.

All of the study area urban villages and proposed expansion areas have been subject to redevelopment since their initial establishment. Some neighborhoods have changed more than others, such as First Hill which was composed of exclusive single-family residences during the 19th century and now features a mix of multi-family residences and commercial buildings (Nyberg and Steinbrueck, 1975). Other neighborhoods still retain aspects of their historic fabric such as Wallingford, which was noted to contain one of the City's best examples of the early twentieth century Craftsman bungalow neighborhoods (Sheridan, 2002). The completeness of the historic fabric for many of the urban village neighborhoods is discussed in the survey of neighborhood commercial buildings (Sheridan, 2002).

UNREINFORCED MASONRY BUILDINGS

All urban villages and proposed expansion areas contain Unreinforced Masonry buildings (URM). This is a common citywide building type, most often represented by a one-story brick-clad building with storefronts (Sheridan 2002). These buildings are often eligible for listing in a historic register and contribute to the historic character of neighborhoods. To date, seismic upgrades are required for URMs only when owners undertake large remodel projects. The City is considering a new policy regarding URMs; recommendations for the policy have been developed by City-sponsored URM Policy Committee. The policy would mandate seismic retrofitting over an extended time period. Objectives include preservation of historic landmarks, neighborhood character, and minimizing vacant or demolished buildings.

BELOWGROUND CULTURAL RESOURCES

The entire study area has varying sensitivity for containing intact belowground cultural resources. These resources can be associated with either the precontact era or historic era, or in some cases both. The Washington State Department of Archaeology and Historic Preservation maintains a Statewide Archaeological Predictive Model which can be used a starting point to assess risk for buried, intact cultural resources (DAHP, 2010). It is based upon several factors including proximity to water, other known archaeological resources, and slope. The model is limited to only precontact-era cultural resources.

The model classifies the study area as a range of risk levels, from Low to Very High. Generally, the urban villages nearest to the Puget Sound shorelines, streams, or lakes have a higher risk classification.

While belowground historic-era cultural resources are not addressed by the Statewide Predictive Model, the urban setting of the study area is an indicator of a high sensitivity for containing these types of cultural resources.

3.5.2 IMPACTS

The MHA program would not directly impact any historic or cultural resources, but development allowed by the MHA program could impact these resources by affecting decisions to demolish or redevelop historic-aged properties or construct new properties on land that may contain belowground cultural resources. The estimated growth rates under the Alternatives are indicators of potential impacts to historic and cultural resources. Areas with a higher growth rate have the potential for more redevelopment than areas with lower projected growth rates. Potential growth rates under Alternative 2 and Alternative 3 could result in the same average potential rate of 39 percent, however the potential growth rate for each urban village differs under the Alternatives. For this analysis, significant impacts will be defined as potential growth rates of 50 percent or greater than the potential growth rates under the No Action Alternative (see Chapter 2, Exhibit 2–8). While potential growth rates less than 50 percent could still result in impacts to historic-aged properties and belowground cultural resources, the amount of growth within each urban village could potentially result in less impact to the overall historic fabric of an urban village.

In addition to growth rates, proposed rezoning changes have the potential to impact historic-aged resources and belowground cultural resources through increasing the allowable capacity within rezoned areas, which could introduce changes in the scale of the urban villages. Redevelopment and demolition of historic-aged resources could occur within M, M1, and M2 rezoning tiers, if projects are undertaken in these areas and projects involve historic-aged resources. Areas rezoned M have the potential for scale increases; however, these increases would allow less of a change than within areas rezoned M1 and M2. Areas rezoned M1 would allow increases into the next highest zone category, which would mean greater increases in allowable scale, and areas rezoned M2 would allow capacity increases of two or more zone categories, which would be the greatest possible increase in scale.

IMPACTS COMMON TO ALL ALTERNATIVES

Redevelopment, demolition, and new construction projects could occur in the study area as a result of all Alternatives; these projects could impact historic resources or result in ground disturbance. Any ground disturbance could impact belowground cultural resources, if present. However, existing policies and regulations regarding review of historic and cultural resources would not change under any Alternative. For development projects within the study area that would be subject to SEPA, potential impacts to historic and cultural resources would still be considered during project-level SEPA review. Potential impacts to historic and cultural resources would still be considered for projects subject to Washington State Executive Order 05-05 and Section 106 of the National Historic Preservation Act.

None of the Alternatives propose zoning changes within the boundaries of the eight designated Seattle historic districts or within the seven National Register historic districts that are located within and are abutting the study area. Zoning changes are proposed in areas abutting several historic districts, as listed above. These changes may have indirect impacts on historic districts if buildings are demolished or redeveloped adjacent to, or across the street from, these boundaries. For projects subject to SEPA, demolition or substantial modifications to buildings over 50 years in age that are adjacent or across the street from designated Seattle Landmarks are subject to review for their potential adverse impacts on the designated landmark (SMC 25.05.675H).

Potential impacts to historic resources could occur from demolition, redevelopment that impacts the character of a historic property, or development adjacent to a designated landmark if the development alters the setting of the landmark and the setting is a contributing element of that landmark's eligibility. Redevelopment could result in a significant adverse impact for properties that have the potential to be landmarks if the regulatory process governing the development does not require consideration of that property's potential eligibility as a Seattle Landmark, such as projects exempt from review under SEPA. For example, projects with fewer than 20 residential units, or that have less than 12,000 square feet of commercial space, are exempt from SEPA review.

Typical SEPA-exempt projects that could occur under the project would be redevelopment or replacement of single-family residences and small buildings with slightly larger residences and buildings. Alternatives 2 and 3 propose increased development capacity through standard increases; a standard increase is defined in Chapter 2 as increases to the

maximum height limit, typically the addition of one story, and increases to the Floor Area Ration (FAR). In some locations other standards such as maximum density or minimum lot size would be adjusted to allow for additional capacity. These increases have the potential to result in changes to the historic scale of neighborhoods.

Potential decreases to the historic fabric of a neighborhood are likely to occur if historic buildings are redeveloped or demolished and new buildings are constructed that are not architecturally sympathetic to the existing historic characteristics of a neighborhood. As a neighborhood's historic fabric decreases, it is less likely to meet local and federal eligibility criteria for consideration as a historic district. For projects subject to SEPA, demolition or substantial modifications to buildings over 50 years in age that are adjacent or across the street from designated Seattle Landmarks are subject to review for their potential adverse impacts on the designated landmark (SMC 25.05.675H). If adverse impacts are identified, mitigation measures may be required. Measures could include sympathetic façade, street, or design treatment or reconfiguring the project and/or location of the project.

All Alternatives anticipate residential and commercial growth in all urban villages and proposed expansion areas. The average projected growth rate under Alternatives 2 and 3 is the same across the study area (39 percent) however anticipated growth rates for individual urban villages differ. For the proposed expansion areas outside of urban villages, the same estimated growth rate is anticipated under Alternatives 2 and 3 (24 percent).

Two urban villages are projected to have housing growth rates above 50 percent under both Alternative 2 and Alternative 3: Morgan Junction and Crown Hill. Both neighborhoods contain historic-aged buildings and URMs. Alternative 2 projects the lowest housing growth rate for both urban villages. Under Alternative 2, the housing growth rate in Crown Hill is estimated to increase by 61 percent versus 155 percent under Alternative 3. For Morgan Junction, Alternative 2 estimates the housing growth rate will increase by 87 percent versus 172 percent under Alternative 3.

Under all Alternatives, current City regulations for renovations to URMs require seismic upgrades for large renovation projects. Seismic retrofitting could result in an adverse impact to a historic resource through changes to the exterior façade, however the result would likely improve the resource's longevity and structural stability.

IMPACTS OF ALTERNATIVE 1 NO ACTION

Alternative 1 would not implement the MHA program and there would be no increase in development capacity, but would include the same growth estimate, resulting in an addition of 70,000 households based on the Seattle 2035 Comprehensive Plan growth boundaries. Under Alternative 1, redevelopment, demolition, and new construction projects could occur in the study area. These projects may be exempt from project-level SEPA review, which could result in impacts to historic and cultural resources, if present and no other regulation requiring consideration of impacts to historic and cultural resources applies to the project.

IMPACTS OF ALTERNATIVE 2

Alternative 2 estimates 10 urban villages will have a housing growth rate of over 50 percent than could under Alternative 1 (Exhibit 3.5–6). The growth rates for these 10 urban villages range between 51 percent and 87 percent with an average of 63.6 percent estimated housing growth rate. The 10 urban villages are 23rd & Union-Jackson, Columbia City, Crown Hill, First Hill-Capitol Hill, Morgan Junction, North Beacon Hill, Northgate, Othello, South Park, and Westwood-Highland Park. Of these, the oldest urban villages are 23rd & Union-Jackson and First Hill-Capitol Hill. These are likely to contain the oldest buildings, however all of the

Exhibit 3.5–6   Urban Villages with 50% or Greater Estimated Housing Growth Under Alternatives 1 and 2

Urban Village	Estimated Housing Growth Under Alternative 1*	Estimated Housing Growth Under Alternative 2	Systematic Inventory Conducted
23rd & Union-Jackson	1,600	2,668 (67%)	Yes *(part of Central Area Survey)*
Columbia City	800	1,205 (51%)	Yes
Crown Hill	700	1,128 (61%)	No
First Hill-Capitol Hill	6,000	10,283 (71%)	No
Morgan Junction	400	746 (87%)	No
North Beacon Hill	400	712 (78%)	Yes
Northgate	3,000	4,526 (51%)	No
Othello/MLK @ Holly Street	900	1,361 (51%)	No
South Park	400	646 (62%)	Yes
Westwood-Highland Park	600	939 (57%)	No

Presented in housing units estimated under the Comprehensive Plan.

Source: Chapter 2, Exhibit 2–7 and Exhibit 2–8.

urban villages contain buildings 25 years or older, which qualify for consideration as potential historic resources. Systematic inventories have been conducted for four of the 10 urban villages.

IMPACTS OF ALTERNATIVE 3

Alternative 3 estimates eight urban villages will have a housing growth rate of over 50 percent than could under Alternative 1 (Exhibit 3.5–7). The growth rate for these eight urban villages ranges between 56 percent and 172 percent with an average of 102.75 percent estimated housing growth rate. Four of those have estimated growth rates over 100 percent. The urban villages over 50 percent are: Admiral, Crown Hill, Eastlake, Fremont, Green Lake, Madison-Miller, Morgan Junction, and Wallingford. Of these, the oldest urban villages are Eastlake and Madison-Miller. These are likely to contain a higher number of older buildings than the others which were incorporated in 1891 or later. However, all of the urban villages contain buildings 25 years or older, which qualify for consideration as potential historic resources. Systematic inventories have been conducted for three of the eight urban villages.

Exhibit 3.5–7   Urban Villages with 50% or Greater Estimated Housing Growth Under Alternatives 1 and 3

Urban Village	Estimated Housing Growth Under Alternative 1*	Estimated Housing Growth Under Alternative 3	Systematic Inventory Conducted
Admiral	300	467 (56%)	No
Crown Hill	700	1,784 (155%)	No
Eastlake	800	1,482 (85%)	No
Fremont	1,300	2,050 (58%)	Yes
Green Lake	600	1,218 (103%)	No
Madison-Miller	800	1,488 (86%)	Yes *(part of Central Area Survey)*
Morgan Junction	400	1,086 (172%)	No
Wallingford	1,000	2,066 (107%)	Yes

Presented in housing units estimated under the Comprehensive Plan.
Source: Chapter 2, Exhibit 2–7 and Exhibit 2–8.

3.5.3 MITIGATION MEASURES

Mitigation measures to reduce potential impacts to historic and cultural resources include:

- Comprehensive Plan policies that promote new development consistent with the historic character of the neighborhood.

- City regulations including the Seattle City Landmark process and archaeological surveys per the Seattle Municipal Code.

- Funding continuation of the comprehensive survey and inventory work that was begun in 2000.

Other mitigation measures could include conducting additional systematic neighborhood surveys to identify historic-aged buildings and potential historic districts; establishing new historic districts to preserve the historic fabric of a neighborhood; establishing new conservation districts such as the City's Pike/Pine Conservation District in order to limit the size of new development and encourage preservation of older structures (referred to in SMC as "character structures"); establishing Transfer of Development Rights (TDR) programs within new conservation districts to provide incentives for property owners to keep existing character structures; and requiring that any structure over 25 years in age that is subject to demolition, including those undergoing SEPA-exempt development, is assessed for Landmark eligibility, and adding regulatory authority to identify resource-specific mitigation before demolition occurs.

UNREINFORCED MASONRY BUILDINGS

If seismic retrofitting is required, potential impacts could be mitigated through adherence to the Secretary of the Interior's Standards for the Treatment of Historic Properties which provides guidance on retaining a building's historic character (Weeks and Grimmer 1995).

3.5.4 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

Since no changes will occur to existing policies and regulations regarding review of historic and cultural resources under any alternative, projects subject to review under existing policies and regulations would still be reviewed at the project level, if and when redevelopment is proposed. At the programmatic level of this analysis, no significant unavoidable impacts to historic and cultural resources are anticipated under any of the proposed alternatives.

3.6

BIOLOGICAL RESOURCES.

The section provides a qualitative assessment of potential impacts to biological resources within the project study area. For the purposes of this analysis, the resources covered include environmentally critical areas (ECAs), as defined by SMC 25.09, and the City's urban forest and tree cover.

3.6.1 AFFECTED ENVIRONMENT

POLICY FRAMEWORK

ECAs

Regulations for ECAs apply to any habitat alteration in landslide-prone areas (steep slopes), riparian corridors, wetlands, and various buffers (SMC 25.09). Proposed development on a property with a mapped ECA requires a different level of City review, specific regulations, and additional safeguards to ensure that slope stability, drainage and/or other ecological functions and values are protected where present; and that proposed structures are designed to avoid and minimize risks of future issues in these areas. These safeguards may include tree and vegetation protections, water quality regulations, and development setbacks around sensitive areas, as well as mandatory construction best practices to prevent landslides and ensure building stability.

Tree Protection

Trees in the City are specifically valued and legally protected under various regulations in addition to the ECA code (SMC 25.09.320). These include the Tree Protection Ordinance (SMC 25.11), landscaping requirements in each zoning category (SMC 23), and specific environmental regulations (SMC 25.05.675)

that implement the goals and policies of the Seattle 2035 Comprehensive Plan for protection of the urban forest. Exceptional trees are specifically protected and defined as a tree or group of trees that constitutes an important community resource because of its unique historical, ecological, or aesthetic value. The regulations include provisions for tree protection, removal, replacement, and designation of exceptional trees.

Seattle's Department of Construction & Inspections (SDCI) Office of Sustainability and Environment (OSE) conducted an analysis of existing tree protection measures to assess whether or not the current regulations and processes are helping the City achieve the goals of the Urban Forest Stewardship Plan (UFSP). The findings are informing the development of recommendations to address gaps and opportunities (City of Seattle, 2017c).

2013 Urban Forest Stewardship Plan

The City implemented the Urban Forest Management Plan (UFSP) in 2007 to outline actions needed to maintain the urban forest. The 30-year plan "set a goal to increase Seattle's canopy cover to 30 percent by 2037 and created a framework for City departments, non-profit organizations, residents, and the community as a whole to support efforts to maintain the urban forest" (City of Seattle, 2013). The 2013 Urban Forest Stewardship Plan is a comprehensive update to the 2007 Plan.

The UFSP establishes four goals:

1. Create an ethic of stewardship for the urban forest among City staff, community organizations, businesses, and residents;

2. Strive to replace and enhance specific urban forest functions and benefits when trees are lost, and achieve a net increase in the urban forest functions and related environmental, economic, and social benefits;

3. Expand canopy cover to 30 percent by 2037; and

4. Remove invasive species and improve species and age diversity to increase the health and longevity of the City's urban forest (City of Seattle, 2013).

Seattle recently completed a 2016 canopy cover analysis which shows a 28 percent canopy cover citywide. The majority of trees are located in residential zones, representing 67 percent of the land and 72 percent of the tree canopy. The public right-of-way (interspersed in all zones) holds 23 percent of the city's tree canopy. A separate analysis from 2015 suggests Seattle may be losing trees, with an estimated canopy cover

loss of 2 percent between 2010 and 2015, with a 3 percent margin of error. The assessment report and presentation materials can be found at www.seattle.gov/trees/.

Street Tree Management Plan

Approximately 40,000 trees within Seattle's road right-of-way areas are managed by the Department of Transportation (SDOT). SDOT implemented the Street Tree Management Plan in 2016 to help facilitate this large task. The goal of the plan is to improve the condition of SDOT-maintained street trees by the end of 2024. The program includes inventory, analysis, deliberate maintenance, and targeted tree replacement to create and maintain healthy and resilient street trees (City of Seattle, 2017b).

ASSESSMENT METHODOLOGY

To characterize and assess potential changes in ECAs and tree canopy cover as a result of proposed changes in zoning classifications and urban village boundary expansion areas within the City, the project team conducted an analysis using geographic information systems (GIS). The following datasets were used:

- MHA Alternative 2 Zoning and Urban Village Expansion (City of Seattle)
- MHA Alternative 3 Zoning and Urban Village Expansion (City of Seattle)
- Environmentally Critical Areas (City of Seattle)
- Tree Canopy, derived from 2016 LiDAR (Office of Sustainability and Environment/University of Vermont)
- Green Spaces: Parks, Cemeteries, Public and Private Schools (City of Seattle)
- Urban Villages with Displacement—Access Opportunity category (City of Seattle)

The MHA Alternative 2 and 3 data includes existing and proposed zoning designations. The existing zones and MHA zones were aggregated into zone categories: Single Family (SF), Residential Small Lot (RSL), Residential Low Rise (LR), Residential Mid and High Rise (MR/HR), and Neighborhood Commercial and Commercial (NC/C). The areas of Urban Village Expansion for Alternatives 2 and 3 include expansions to the boundaries of 10 urban villages (Rainier Beach, Othello, Roosevelt, Ballard, West Seattle Junction, Crown Hill, Columbia City, North Rainier, and 23rd & Union-Jackson), with an additional expansion in Northgate

under Alternative 2. The zoning categories were aggregated for the following reasons:

- For NC zones, there is not likely to be significant differences in the amount of tree canopy on redeveloped sites as lot line to lot line development is allowed in all NC zones. The changes in standards for NC zones as well as changes that increase the height of NC zones are likely to result in taller but not wider buildings

- No parcels are proposed to change from MR to HR zones. While HR is significantly taller, the bottom of these structures might not be significantly different.

- There is a significant diversity of development types in LR zones (cottages, townhouses, apartments) that have different impacts on tree canopy. However, the development types do not occur exclusively in any single zone (e.g., townhouse buildings are found in different zones) and the high density does not directly relate to lower tree canopy. For example, townhouses sometimes result in lower canopy than apartments since they spread the structures out and have pavement in between.

To characterize ECAs, the current acreage of individual ECAs was quantified for each Urban Village. The total acreage of all ECAs was quantified for the proposed Urban Village Expansion areas for each of the MHA Alternatives. For areas with proposed changes in zoning designations, a qualitative assessment of the potential impacts to ECAs was conducted using available information. Because this review used existing mapped data sources and no field investigations, it is a general summary for the purposes of identifying ECAs that could be affected by implementation of MHA requirements. Additional resources could exist but are not identifiable at the coarse scale of the GIS data.

The acreage and percent of tree canopy cover was quantified for the existing and proposed zoning designations within each of the MHA Alternatives in GIS. For this analysis, green spaces data were evaluated separately, as tree canopy in these areas are unlikely to change, regardless of zoning change. Tree cover for a given zone was assumed to remain constant over time if the zoning designation stayed the same. For example, a zone change from LR to LR would not represent a change. The one exception was the percent cover for RSL. There is currently only one area zoned RSL in the study area. This did not provide a large enough sample size to accurately estimate the percent coverage for all current and future RSL zones. Given this, the tree cover was calculated as the average of SF tree cover and LR tree cover, weighted

by lot coverage. This calculation assumed that lot coverage translates to canopy coverage proportionally.

The percent tree cover was then used to determine the amount of change (change coefficient) for high and low tree change scenarios. First, the **high scenario** was calculated as the difference in percent between the proposed zone tree cover and the existing zone tree cover. This represents the maximum amount of potential change likely to occur based on the changes in zoning. It would approximate a condition wherein tree canopy would transition completely to the characteristics of the new zone designation over the 20-year period, including tree losses and tree maturation and replanting. For example, a high scenario zone change from LR-NC to C would represent a 10.27 percent change in tree cover while a zone change from RSL to LR would be 0.85 percent. Because development occurs incrementally over time, such a complete transition is unlikely. The **low scenario** was calculated as half of this difference. For example, the same zone change from LR-NC to C would represent a 5.14 percent change while a zone change from RSL to LR would be 0.43 percent. This assumes a more moderate level of change in canopy cover. The range of tree loss was calculated by multiplying the acres of land in each zone change category by its high and low change coefficient to determine the amount of acres lost for each zone. The same methods were used to calculate tree loss for the Displacement and Access summary table.

EXISTING CONDITIONS

The nature of Seattle's landforms, soils, streams, and wetlands and the risks posed by large seismic events and seasonal weather, has led the City to designate ECAs. These are places where landslides or floods could occur, or major soil movements during earthquakes, or where there are riparian features that have recreational and aesthetic value. ECAs provide natural functions and values that support wildlife presence and also fish passage through major waterbodies. The Seattle Comprehensive Plan Update Draft EIS describes the City's existing landforms and natural features and provides an overview of ECAs in the City (City of Seattle, 2015). Areas designated as ECAs include (SMC 25.09.020):

- Landslide-prone areas (including steep slope areas, potential landslide areas and known landslide areas)
- Liquefaction-prone areas (sites with loose, saturated soil that can lose the strength needed to support a building during earthquakes)

- Peat-settlement-prone areas (sites containing peat and organic soils that may settle when the area is developed or the water table is lowered)
- Seismic hazard areas
- Volcanic hazard areas
- Flood-prone areas
- Wetlands
- Fish and wildlife habitat conservation areas (including priority habitats and species areas, riparian corridors, and habitat for species of local importance)
- Abandoned landfills

Many but not all of these features are in lightly developed areas or are otherwise protected as parklands in the City. Table 3.1–1 in Chapter 3.1 of the Comprehensive Plan DEIS lists the presence of ECAs in or near urban centers and villages. Generally, while there is often a scattered presence of mapped steep slope ECAs within many lower-density residential neighborhoods, the majority of the urban centers' and villages' areas are developed in the flatter and lesser constrained areas of the city, which do not contain ECAs. The DEIS also describes areas of the City with a greater potential risk of ECA disturbance (City of Seattle, 2015).

A healthy urban forest provides benefits including air and water pollution mitigation, habitat for wildlife, and storm water runoff reduction. Trees are fundamental to the character of Seattle—a city that celebrates its reputation as one of the country's greenest cities. Trees create beautiful views in their own right, and frame views of other natural wonders, such as Mount Rainier, the Cascade and Olympic mountain ranges, Puget Sound, and magnificent lakes throughout Seattle. Seattle's natural landscape was originally heavily wooded; however, most of the original trees were clear-cut by the late 1800s. Seattle's existing urban forest is mostly human-made and consists of more recently planted vegetation (City of Seattle, 2013).

3.6.2 IMPACTS

The MHA program would not directly impact any biological resources, but development allowed by the MHA program could affect these resources by affecting decisions to redevelop or expand properties containing trees or ECAs. All anticipated growth has the potential to affect these resources and would be required to comply with the existing regulations for protection of ECAs and trees. The City's regulations require protective measures such as erosion controls that limit areas subject to construction-related disturbance and minimize the transport of soils and pollutants off site. There are also protections through critical areas regulations that will be applied where relevant, such as buffers, prohibitions on disturbance or limitations on the nature and extent of development activities.

IMPACTS COMMON TO ALL ALTERNATIVES

Development and redevelopment is expected to occur under all of the alternatives, although at different projected rates. In general, development of any kind has the potential to affect ECAs and tree canopy cover through site disturbance during construction and through land use activities after construction. Under all of the alternatives, parcels that are not proposed to have a zoning change but are included within the MHA study area still have the potential for development or redevelopment based on the existing zoning category. However, Alternatives 2 and 3 would allow more housing units and more dense development within the project study area than would Alternative 1.

Under all of the alternatives, zoning changes to lands classified in the public domain would not result in direct impacts to biological resources. This includes parks, open and green spaces, trails, schools, and cemeteries. These public areas are not anticipated to have changes to intensify use over the life of the project. Because of this, it can be inferred that existing ECAs and trees would be retained and allowed to mature naturally. Indirect impacts, such as changes to stream flows from upstream development, could occur. Direct and indirect impacts to ECA's would be evaluated on a project by project basis as a condition of permitting.

IMPACTS OF ALTERNATIVE 1 NO ACTION

Alternative 1 is based on the growth strategy of the Seattle 2035 Comprehensive Plan and assumes that MHA would not be implemented in the study area. No area-wide zoning changes or affordable housing

requirements would take place. Under Alternative 1, redevelopment, demolition, and new construction projects could occur in the study area under the existing zoning.

ECAs

Under Alternative 1, there would be no change in zoning due to the MHA program. All existing critical area regulations would continue to govern development in and near ECAs under the current zoning.

Tree Canopy

Under Alternative 1, there would be no change in zoning due to the MHA program. The resulting change in canopy cover is assumed to be static. In other words, changes in canopy coverage would still be expected, but as a result of the current zoning and tree protection policies, codes, and development standards. This study does not quantify tree loss resulting from current development patterns.

IMPACTS OF ALTERNATIVE 2

Alternative 2 would revise the existing Land Use Code, resulting in a potential for 63,070 housing units in the planning area, an increase of 39 percent in housing unit growth compared to 45,361 housing units under Alternative 1. The overall effect would be an additional 17,709 housing units (see Chapter 2, Exhibit 2–7). Additionally, the zoning changes would allow the scale of development to increase and in some cases, the type of structures. For additional details on the potential land use changes that would be allowed under the alternatives, see Section 3.2 Land Use.

In Alternative 2, urban village boundary expansions approximating a full 10-minute walkshed are proposed in 10 of the urban villages where boundary expansions were proposed in the Seattle 2035 Comprehensive Plan update process, plus a small urban village boundary expansion in Northgate. The Seattle 2035 Comprehensive Plan Future Land Use map would be modified to reflect larger urban villages in these areas.

ECAs

Growth will occur in all urban villages in varying amounts due to the proposed changes in zoning and boundary expansion. Given the potential for future growth, ECAs in these areas could experience

adverse impacts generated during future construction and by increased density of urban uses and activities after construction.

During Construction

Future development will lead to grading, demolition and similar construction activities that will generate the potential for disturbed soil to be conveyed off site and into nearby drainage systems, primarily through stormwater runoff, tracking of soils, and leaking of petroleum products on surfaces in the local vicinity. Releases could be intentional or unintentional in nature, and could make their way into local streams or wetlands through stormwater washoff and drainage. On construction sites that are close to natural vegetated areas and/or ECAs, there may be increased potential for disturbance to generate adverse impacts, such as when potentially unstable steep slopes or poor quality soils are present.

In a variety of places, future development in properties without ECAs could indirectly lead to adverse effects upon critical areas such as natural ravine drainages that lie in nearby downstream locations. This could occur in places that drain to natural streams or via drainage utility systems that are designed to outfall to natural receiving waterbodies if soils and other pollutants are washed off and conveyed far enough away from construction sites. Compliance with regulations for on-site activities is anticipated to sufficiently address and minimize the potential for adverse impacts of these kinds from future development.

After Construction

Even after construction, future possible activities on residential or commercial properties could adversely affect ECAs directly or indirectly. Examples include: landscaping involving earth movement in or near critical areas, improper tree cutting or other vegetation management that violates City rules, paving areas without including appropriate stormwater control features, or the cumulative effects of multiple parties' actions that could potentially alter drainage patterns and/or affect soil and slope stability.

The proposed changes in zoning may result in increased density and activity levels for residential or commercial purposes and the associated use of automobiles and other activities, which could contribute to additional increments of adverse water quality impacts in ECAs. For example, wetlands and streams may be impacted by runoff of pollutants from street surfaces and discharge of pollutants into drains. However, the City's current level of requirements for stormwater and water quality controls mean that future development would in most cases be expected

to lead to net increases in protection of nearby ECAs or other natural resources, due to the slowing, redirection and treatment of stormwater and surface runoff by on-site systems.

Based on the analysis of available information, ECAs cover approximately 9,000 acres of all Urban Villages combined with nearly 69 percent (6,149 acres) designated as liquefaction prone areas. Under Alternative 2, an additional 142 acres of mapped ECAs would occur within the boundaries of Urban Villages. This is a 1.6 percent increase from current conditions and is considered very minimal. In addition, the expansion areas are located at the outer edges of the current Urban Villages boundaries and are thus adjacent to lower zoning designations. Exhibit 3.6–1 shows the total amount (acres) of each ECA type (i.e., wetland, steep slopes, etc.) for all of the Urban Village Expansion Areas combined. Exhibit 3.6–3 and Exhibit 3.6–4 display the locations of mapped critical areas within the City, Urban Villages, and Urban Village Expansion Areas for MHA Alternative 2.

In general, the parcels within the expansion areas that are changing from non-Urban Village to Urban Village would potentially experience redevelopment, which may affect ECAs in ways described above.

Exhibit 3.6–1   ECA Analysis Summary, Alternative 2

ECA Type	Amount (Acres) of Mapped ECA within All Existing Urban Villages	Amount (Acres) of Mapped ECA within All MHA Alternative 2 Urban Village Expansion Areas
Steep Slope Erosion Areas	375.5	30.3
Slope 40% Areas	481.9	27.8
Potential Slide Areas	259.6	23.0
Known Slide Areas	37.4	0.9
Liquefaction-Prone Areas	6,148.8	24.1
Peat Settlement-Prone Areas	632.8	4.2
Flood-Prone Areas	138.8	0.1
Wetland Areas	54.7	0.6
Priority Habitats and Species Areas	254.2	30.3
Riparian Corridors	101.3	0.3
Shoreline Habitat Areas	442.7	—
Total	*8,927.7*	*141.6*

Note: Only ECAs that overlap urban villages are shown; other ECA types occur within the City, but are not mapped within the existing and proposed expansion areas of Urban Villages (seismic hazard areas, volcanic hazard areas, abandoned landfills). ECA amounts were calculated using 2017 Seattle GIS data for ECAs and the urban village boundaries used for the alternatives.

Source: ESA, 2017.

Parcels within Urban Villages that have proposed zoning changes may also experience redevelopment due to the changes in the development standards in the land use code (e.g., removal of density limits for some zones and increases in height and the allowable floor-to-area ratios). In particular, the increases in FAR is proposed for all zones except LR1, RSL, and SF may result in potential for adverse impacts to ECAs in and near the vicinity generated during future construction and by increased density of urban uses and activities after construction. However, current ECA regulations would continue to govern development. Projects proposed under the regulations would require site-specific analysis to determine the presence of ECAs, and subsequent avoidance and minimization of potential impacts. In addition, landscaping and setback requirements will be required on parcels in LR, MR, HR, NC, and C zones, which can contribute to overall vegetation preservation and rectification.

Exhibit 3.6–2 provides the total acreage of ECAs that intersect urban villages and expansion areas in Alternative 2. Urban villages with high displacement risk have the largest amounts of ECAs added to urban villages. Compared to Alternative 3, there are 7.2 more acres of ECAs in expansion areas in urban villages with high displacement risk and low access to opportunity. Most of the difference is due to a larger urban village boundary expansion in Rainier Beach. In urban villages with high displacement risk and high access to opportunity, there are 25.9 more acres of ECAs in expansion areas compared to Alternative 3. Most of the difference is due to a larger urban village boundary expansion in the 23rd & Union–Jackson Urban Village near the I-90 right-of-way. Exhibit 3.6–3 and Exhibit 3.6–4 provide maps of ECAs in urban villages.

Exhibit 3.6–2   ECA and Shoreline District Land Area in MHA Study Area Urban Villages and Expansion Areas (Acres), Alternative 2

Neighborhood Type	Existing Urban Villages	Expansion Areas
High Displacement Risk & Low Access to Opportunity	544.4	30.7
Low Displacement Risk & High Access to Opportunity	285.2	2.7
High Displacement Risk & High Access to Opportunity	573.9	47.8
Low Displacement Risk & Low Access to Opportunity	23.3	—

Source: ESA, 2017.
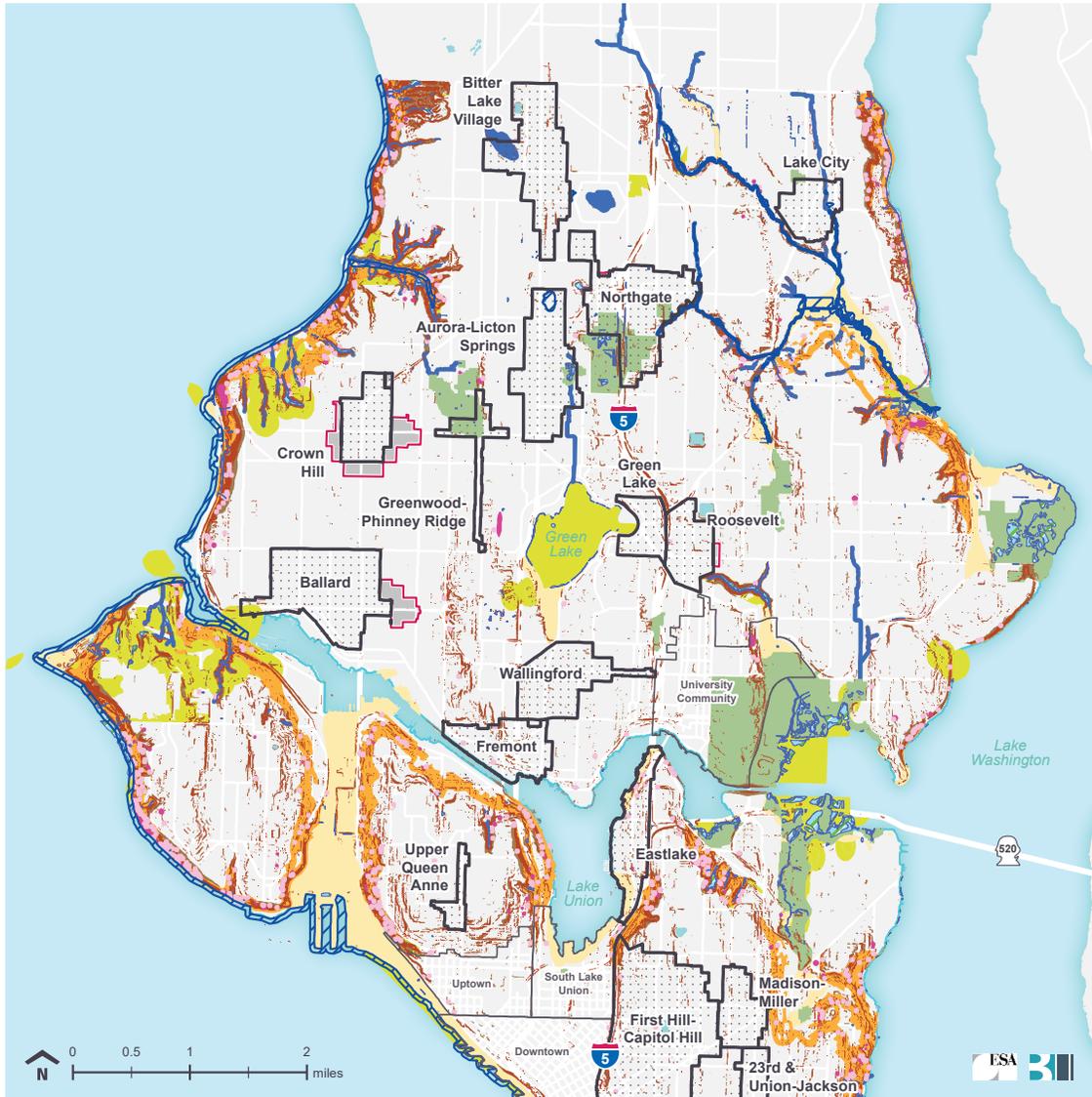
Exhibit 3.6–3   Critical Areas, Alternative 2 North

**Geologic Hazard and
Steep Slope Areas**

- Known Slide Location
- Known Slide Area
- Slopes <40%
- Potential Slide Areas
- Steep Slope Erosion Areas
- Peat Settlement Prone Areas
- Liquefaction Prone Areas

**Fish and Wildlife Habitat
Conservation Areas**

- Riparian Corridor
- Priority Habitats
  and Species Areas
- Shoreline Habitat

- Flood Prone Areas
- Wetlands

**Urban
Centers/Villages**

- In MHA Study Area
- Outside MHA Study Area
- Potential Expansion
  Areas: Alternative 2

Source: City of Seattle, 2017; Seattle Department of Transportation, 2017.

Exhibit 3.6–4   Critical Areas, Alternative 2 South

**Geologic Hazard and
Steep Slope Areas**

- Known Slide Location
- Known Slide Area
- Slopes <40%
- Potential Slide Areas
- Steep Slope Erosion Areas
- Peat Settlement Prone Areas
- Liquefaction Prone Areas

**Fish and Wildlife Habitat
Conservation Areas**

- Riparian Corridor
- Priority Habitats
and Species Areas
- Shoreline Habitat

- Flood Prone Areas
- Wetlands

**Urban
Centers/Villages**

- In MHA Study Area
- Outside MHA Study Area
- Potential Expansion
Areas: Alternative 2

Source: City of Seattle, 2017; Seattle Department of Transportation, 2017.

Tree Canopy

The analysis described above was completed for the Alternative 2 zoning changes and is summarized in Exhibit 3.6–5. The parcels changing from SF and LR to NC/C would see the largest change in tree canopy cover if fully developed; however, these two categories only account for approximately 13 acres within the 2,466-acre study area. Overall, there is currently approximately 20 percent tree canopy coverage within the Alternative 2 study area. With the zoning changes proposed in Alternative 2, there is the potential for a total loss of between 5 and 11 acres of tree canopy cover within the study area.

Exhibit 3.6–6 summarizes the existing tree canopy cover for the Alternative 2 study area by Displacement Risk and Access to Opportunity categories. In all cases, there is less than one percent difference between the existing cover and the Alternative 2 scenario.

In every category, there is less than one-half of one percent (<0.5 percent) difference between the existing tree canopy cover and the Alternative 2 scenario. In addition, this change in cover is a conservative scenario based on full conversion to characteristics of the proposed zoning. This change is not considered a significant impact.

Exhibit 3.6–5   Tree Canopy Analysis Summary, Alternative 2

			2016 Acres of Tree Cover	CHANGE COEFFICIENT		ALTERNATIVE 2 ACRES OF TREE COVER	
				High Scenario	Low Scenario	High Scenario	Low Scenario
EXISTING							
Zone	Tree Cover	Zone Change					
Green Space*	30.09%		215.2			215.2	215.2
LR	23.41%	LR to LR	1,057.5	0.00%	0.00%	1,057.5	1,057.5
MR/HR	21.14%	LR to MR/HR	48.9	-2.27%	-1.14%	47.8	48.4
NC/C	13.14%	LR to NC/C	7.3	-10.27%	-5.14%	6.6	6.9
RSL	24.26%	MR/HR to MR/HR	85.7	0.00%	0.00%	85.7	85.7
SF	25.43%	MR/HR to NC/C	0.5	-8.00%	-4.00%	0.5	0.5
		NC/C to NC/C	530.9	0.00%	0.00%	530.9	530.9
		RSL to LR	3.2	-0.85%	-0.43%	3.1	3.1
		SF to LR	255.1	-2.02%	-1.01%	249.9	252.5
		SF to NC/C	6.1	-12.29%	-6.15%	5.4	5.7
		SF to RSL	255.4	-1.17%	-0.59%	252.4	253.9
		Total Acres	**2,465.8**			**2,455.0**	**2,460.4**
		Total %	**20.61%**			**20.52%**	**20.56%**

*Green space includes parks, cemeteries, public and private schools.

Note: Single Family (SF), Residential Small Lot (RSL), Residential Low Rise (LR), Residential Mid and High Rise (MR/HR), and Neighborhood Commercial and Commercial (NC/C).

Source: ESA, 2017.

Exhibit 3.6–6   Tree Cover by Displacement/Access Group, Alternative 2

Displacement and Access	Existing Tree Cover*	High Scenario	Low Scenario
High Displacement Risk & High Access to Opportunity	19.63%	19.49%	19.56%
High Displacement Risk & Low Access to Opportunity	19.04%	18.83%	18.94%
Low Displacement Risk & High Access to Opportunity	19.49%	19.36%	19.42%
Low Displacement Risk & Low Access to Opportunity	17.31%	17.18%	17.25%

*Excludes all areas in green spaces.

Source: ESA, 2017.

IMPACTS OF ALTERNATIVE 3

Alternative 3 would revise the existing Land Use Code resulting in a potential for 62,858 housing units in the planning area, an increase of 38.6 percent in housing unit growth compared to 45,361 housing units under Alternative 1. The overall effect would be an additional 17,497 housing units (see Chapter 2, Exhibit 2–7).

Under Alternative 3, expansions to the boundaries of 10 urban villages are proposed, and the Future Land Use map would be modified to reflect the larger urban villages. However, urban village boundary expansion areas are reduced from an approximate 10-minute walkshed, to an approximate 5-minute walkshed from the transit node for certain urban villages based on the Access to Opportunity and Displacement Risk typology. This reduced walkshed results in smaller urban village boundary expansions for Rainier Beach, Othello, North Rainier, North Beacon Hill and 23rd & Union-Jackson in Alternative 3 compared to Alternative 2.

ECAs

Based on the analysis for Alternative 3, an additional 102 acres would be within the expanded boundaries or a 1.2 percent increase from existing conditions (Exhibit 3.6–7). This is approximately 40 acres less than Alternative 2, although both alternatives would experience very minimal changes in comparison to the current amount of mapped critical areas. As with Alternative 2, parcels within Urban Villages that have proposed zoning changes may also experience redevelopment due to the changes in the development standards. Current critical areas would continue to govern development and projects proposed under the regulations would require site analysis to determine the presence of ECAs, and subsequent avoidance and minimization of potential impacts.

Exhibit 3.6–8 provides the total acreage of ECAs that intersect in urban villages and expansion areas in Alternative 3. The largest increases in ECA acreage occur in urban villages with high displacement risk, like Alternative 2 but to a lesser degree. Compared to Alternative 2, there are 7.2 fewer acres of ECAs in expansion areas in urban villages with high displacement risk and low access to opportunity. Most of the difference is due to a smaller urban village boundary expansion in Rainier Beach. In urban villages with high displacement risk and high access to opportunity, there are 25.9 fewer acres of ECAs in expansion areas compared to Alternative 2. Most of the difference is due to a smaller urban village boundary expansion in the 23rd & Union–Jackson Urban Village near

Exhibit 3.6–7 ECA Analysis Summary, Alternative 3

ECA Type	Amount (Acres) of Mapped ECA within All Existing Urban Villages	Amount (Acres) of Mapped ECA within All MHA Alternative 3 Urban Village Expansion Areas
Steep Slope Erosion Areas	375.5	24.4
Slope 40% Areas	481.9	21.4
Potential Slide Areas	259.6	17.0
Known Slide Areas	37.4	0.5
Liquefaction-Prone Areas	6,148.8	8.6
Peat Settlement-Prone Areas	632.8	—
Flood-Prone Areas	138.8	0.1
Wetland Areas	54.7	0.4
Priority Habitats and Species Areas	254.2	29.6
Riparian Corridors	101.3	0.3
Shoreline Habitat Areas	442.7	—
Total	*8,927.7*	*102.3*

Note: Only ECAs that overlap urban villages are shown; other ECA types occur within the City, but are not mapped within the existing and proposed expansion areas of Urban Villages (seismic hazard areas, volcanic hazard areas, abandoned landfills). ECA amounts were calculated using 2017 Seattle GIS data for ECAs and the urban village boundaries used for the alternatives.

Source: ESA, 2017.

Exhibit 3.6–8 ECA and Shoreline District Land Area in MHA Study Area Urban Villages and Expansion Areas (Acres), Alternative 3

Neighborhood Type	Existing Urban Villages	Expansion Areas
High Displacement Risk & Low Access to Opportunity	501.9	23.4
Low Displacement Risk & High Access to Opportunity	275.2	3.6
High Displacement Risk & High Access to Opportunity	573.6	21.9
Low Displacement Risk & Low Access to Opportunity	23.3	—

Source: ESA, 2017.

the I-90 right-of-way. Compared to Alternative 2, 0.9 more acres of ECAs exist in expansion areas in urban villages with low displacement risk and high access to opportunity due to the inclusion of small isolated ECA areas in West Seattle Junction and Roosevelt. Exhibit 3.6–9 and Exhibit 3.6–10 provide maps of ECAs in urban villages.
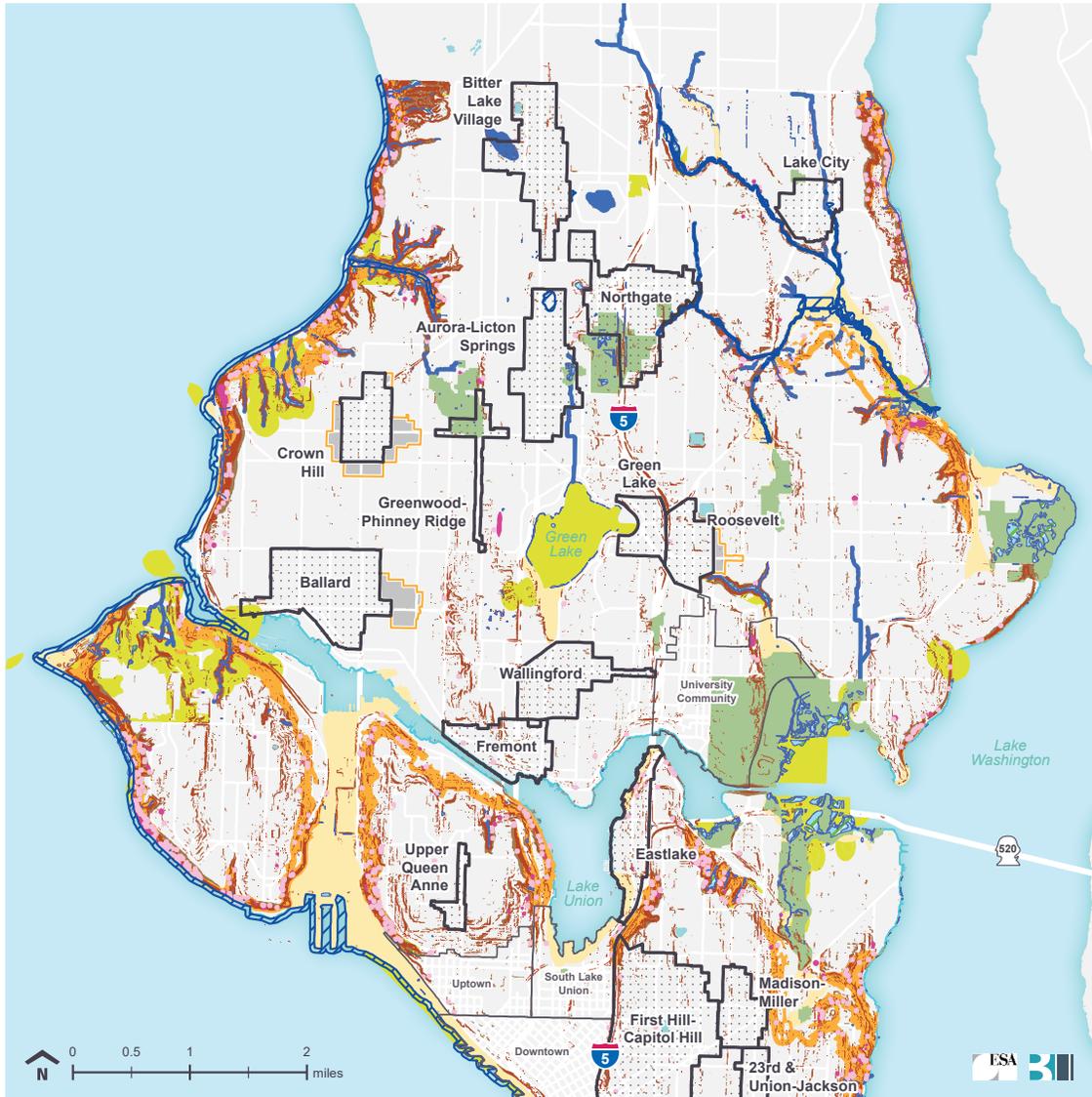
Exhibit 3.6–9   Critical Areas, Alternative 3 North

**Geologic Hazard and
Steep Slope Areas**

- Known Slide Location
- Known Slide Area
- Slopes <40%
- Potential Slide Areas
- Steep Slope Erosion Areas
- Peat Settlement Prone Areas
- Liquefaction Prone Areas

**Fish and Wildlife Habitat
Conservation Areas**

- Riparian Corridor
- Priority Habitats and Species Areas
- Shoreline Habitat
- Flood Prone Areas
- Wetlands

**Urban
Centers/Villages**

- In MHA Study Area
- Outside MHA Study Area
- Potential Expansion Areas: Alternative 3

Source: City of Seattle, 2017; Seattle Department of Transportation, 2017.

Exhibit 3.6–10   Critical Areas, Alternative 3 South

Geologic Hazard and Steep Slope Areas

- Known Slide Location
- Known Slide Area
- Slopes <40%
- Potential Slide Areas
- Steep Slope Erosion Areas
- Peat Settlement Prone Areas
- Liquefaction Prone Areas

Fish and Wildlife Habitat Conservation Areas

- Riparian Corridor
- Priority Habitats and Species Areas
- Shoreline Habitat

- Flood Prone Areas
- Wetlands

Urban Centers/Villages

- In MHA Study Area
- Outside MHA Study Area
- Potential Expansion Areas: Alternative 3

Source: City of Seattle, 2017; Seattle Department of Transportation, 2017.

Tree Canopy

The analysis described above was completed for the Alternative 3 zoning changes and is summarized in Exhibit 3.6–11. Similar to Alternative 2, the parcels changing from SF and LR to NC/C would see the largest change in tree canopy cover if fully developed; however, these two categories only account for approximately 15 acres within the 2,383-acre study area. Overall, there is currently approximately 21 percent tree canopy coverage within the Alternative 3 study area. With the zoning changes proposed in Alternative 3, there is the potential for a total loss of between 8 and 16 acres of tree canopy cover.

Exhibit 3.6–12 summarizes the existing tree canopy cover for the Alternative 3 study area by Displacement Risk and Access to Opportunity categories.

In every category, there is less than one-half of one percent (<0.5 percent) difference between the existing tree canopy cover and the Alternative 3 scenario. In addition, this change in cover is a worst-case scenario based on full development under the proposed zoning. This change is not considered a significant impact.

Exhibit 3.6–11 Tree Canopy Analysis Summary, Alternative 3

EXISTING				CHANGE COEFFICIENT		ALTERNATIVE 3 ACRES OF TREE COVER	
Zone	Tree Cover	Zone Change	2016 Acres of Tree Cover	High Scenario	Low Scenario	High Scenario	Low Scenario
Green Space*	29.84%		206.9			206.9	206.9
LR	23.41%	LR to LR	1,096.6	0.00%	0.00%	1,096.6	1,096.6
MR/HR	21.30%	LR to MR/HR	10.4	-2.10%	-1.05%	10.2	10.3
NC/C	13.13%	LR to NC/C	6.7	-10.27%	-5.14%	6.0	6.3
RSL	24.26%	MR/HR to MR/HR	85.7	0.00%	0.00%	85.7	85.7
SF	26.94%	MR/HR to NC/C	0.2	-8.17%	-4.08%	0.2	0.2
		NC/C to NC/C	530.9	0.00%	0.00%	530.9	530.9
		RSL to LR	3.2	-0.85%	-0.43%	3.1	3.1
		SF to LR	201.5	-3.53%	-1.77%	194.4	197.9
		SF to NC/C	8.4	-13.80%	-6.90%	7.3	7.8
		SF to RSL	232.1	-2.68%	-1.34%	225.8	228.9
		Total Acres	**2,382.5**			**2,367.0**	**2,374.7**
		Total %	**20.63%**			**20.50%**	**20.56%**

*Green space includes parks, cemeteries, public and private schools.

Note: Single Family (SF), Residential Small Lot (RSL), Residential Low Rise (LR), Residential Mid and High Rise (MR/HR), and Neighborhood Commercial and Commercial (NC/C).

Source: ESA, 2017.

Exhibit 3.6–12 Tree Cover by Displacement/Access Group, Alternative 3

Displacement and Access	ALTERNATIVE 3		
	Existing Tree Cover*	High Scenario	Low Scenario
High Displacement Risk & High Access to Opportunity	19.58%	19.07%	19.32%
High Displacement Risk & Low Access to Opportunity	19.08%	18.79%	18.93%
Low Displacement Risk & High Access to Opportunity	19.65%	19.34%	19.49%
Low Displacement Risk & Low Access to Opportunity	17.31%	17.02%	17.17%

*Excludes all areas in green spaces.

Source: ESA, 2017.

3.6.3 MITIGATION MEASURES

This section has identified comparative differences in the potential for adverse impacts related to disturbance of ECAs and tree canopy by potential future development. However, none of these identified impacts are concluded to be significant adverse impacts. The continued application of the City's existing policies, review practices and regulations, would help to avoid and minimize the potential for significant adverse impacts to critical areas discussed in this section. Existing ECA regulations require a pre-construction survey for development or redevelopment in and near ECAs to determine the presence of significant biological resources, including exceptional trees. Should an ECA be identified, measures would be taken during project design to avoid, minimize, or mitigate the impact to the critical area. Such measures could include redesigning the facility to avoid the sensitive area, or enhancing the sensitive area. For sites with steep slopes and riparian corridors, appropriate building setbacks and erosion control measures would be taken into consideration.

For tree canopy, the City is evaluating a range of urban forestry policies and programs in preparation for the 2018 update of the Urban Forest Stewardship Plan (UFSP). Findings from the 2015 and 2016 canopy cover assessments, the regulatory research, and the analysis in this MHA Draft EIS indicate that tree protection codes and incentives are important to protecting, planting, and maintaining trees on private property as the city grows. Current options the City is exploring include:

- Address gaps in current tree protections through training, process, and systems improvements
- Improve enforcement of regulations and penalties.
- Improve and/or expand tree protections.

- Expand incentives and development standards to grow trees as development occurs, specifically in single and multifamily residential areas.

- Increase stewardship of conifers, which provide the greatest public benefit and comprise only 28 percent of the canopy.

- Expand and enhance trees on public lands and in the right-of-way.

- Partner with the community to expand trees in low canopy areas to advance environmental justice and racial equity.

- Preserve and enhance tree groves to maximize environmental benefits.

- Strategically plant and care for trees to mitigate heat island effect and promote greater community resilience

3.6.4 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

No significant unavoidable adverse impacts to ECAs or tree canopy cover have been identified.

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3.7

OPEN SPACE AND RECREATION.

3.7.1 AFFECTED ENVIRONMENT

INTRODUCTION

Seattle Parks and Recreation (SPR) manages a 6,400-acre park system of more than 485 parks and open spaces that comprises about 12 percent of the Seattle's land area.[1] Other open spaces in Seattle include the Chittenden Locks, Olympic Sculpture Park, portions of the Burke-Gilman Trail, fields and playgrounds associated with public and private schools, waterfront access points provided by the Port of Seattle, and open spaces on college and university campuses. There are also privately owned open spaces, such as plazas, available to the public.

Projected growth in Seattle would result in increased demand for parks and open space. Because the Comprehensive Plan guides most population growth to urban centers and urban villages, SPR expects parks and open space demand in those neighborhoods to grow substantially (SPR, 2016). This chapter provides a programmatic assessment of potential impacts to parks and open space in the EIS study area resulting from increased housing and employment capacity proposed as part of MHA implementation.

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1 *Parks and open space include natural areas and greenbelts; community, neighborhood, and regional parks; mini/pocket parks; specialty gardens; community centers; pools; swimming beaches, fishing piers, and boat ramps; golf courses; small craft centers; outdoor camp; and tennis centers.*

POLICY FRAMEWORK

This section summarizes plans and policies applicable to the provision of parks and open space in the study area in light of future residential growth.

Seattle 2035 Comprehensive Plan

The Seattle 2035 Comprehensive Plan outlines the City's goal to provide a variety of parks and open space to serve Seattle's growing population in accordance with the priorities identified in the City's Parks Development Plan. Accordingly, the City plans to expand its park holdings and open space opportunities, particularly in urban villages. The City also encourages private developers to incorporate on-site publicly accessible open space (City of Seattle, 2016). In addition, a goal in the Seattle 2035 Comprehensive Plan is to consider access to parks by transit, bicycle, and on foot when acquiring, siting, and designing new park facilities, or improving existing ones. The 2005 Comprehensive Plan provided quantitative, population-based goals for the provision and distribution of open space in urban center villages, hub urban villages, and residential urban villages, as well goals specific to village commons (City of Seattle, 2005). The Seattle 2035 Comprehensive Plan generalizes these open space goals, and the 2017 Draft Parks Development Plan provides specific level-of-service (LOS) standards and walkability guidelines (SPR, 2017).

Seattle's Parks and Recreation Development Plans

The 2011 Development Plan is the adopted plan for this assessment; however, it incorporated parks and open space goals from the 2005 Comprehensive Plan and the 2006 Seattle Parks and Recreation Plan, which are no longer applicable (such as population-based standards at the urban village scale). Because of this, the analysis for this Seattle MHA EIS only considered the goals from the 2011 Development Plan that are still relevant (Exhibit 3.7–1). SPR is currently updating its 2011 Development Plan with a Draft 2017 Parks and Open Space Plan (released in May of 2017). Although the 2017 Plan has not been finalized, it is likely to be adopted in the fall of 2017. The analysis for this Seattle MHA EIS uses the metrics from this plan to identify significant impacts because it incorporates goals from the Seattle 2035 Comprehensive Plan and is consistent with 2014 Parks Legacy Plan, the 2016 Seattle Recreation Demand Study, the 2015 Community Center Strategic Plan, and other city plans. How these two plans were used and considered is described in greater detail in the subsections below.

Seattle's Parks and Recreation 2011 Development Plan

SPR's 2011 Development Plan guides acquisition and development efforts over a five- to six-year period. The Development Plan provides goals and policies for park acquisition and development, identifies locations where distribution guidelines for parks and open space are unmet based on an open space gap analysis, and includes an adopted capital improvement program for parks and recreation facilities. Through the Development Plan, SPR aims to provide an appropriate number and distribution of park and recreation facilities and to site future facilities in part based on demonstrated or anticipated demand and distribution guidelines. To achieve this, SPR must acquire property for parks and open space to "fill the identified gaps in usable open space and to manage future growth and change consistent with the City's growth management goals and policies as outlined in the City's Comprehensive Plan" (SPR, 2011).

SPR typically prioritizes new parks and open space where the City expects population growth, such as urban villages, and in areas currently deficient according to the population-based goals for open space.

The City has not adopted LOS standards relative to parks and open space. However, the 2011 Development Plan does establish distribution guidelines for provision of parks, open space, and recreational facilities (Exhibit 3.7–1). Even if an area does not meet the goals in Exhibit 3.7–1, it can still fall within the "acceptable" designation if approved offsets compensate for the overall shortfall of open space and/or neighborhood parks. Approved community offsets include school grounds, green streets, boulevards, and trails, among others (SPR, 2011).

Exhibit 3.7–1   Distribution Goals for Provision of Parks, Open Space, and Recreational Facilities

Location	Type of Open Space Evaluated	Acceptable
Citywide	Breathing Room / Total Open Space: combined acreage of parks, greenspaces, trails, and boulevards.	1/3 acre per 100 resident population
Single-Family Residential Areas	Neighborhood Park / Useable Open Space: relatively level and open, easily accessible, primarily green open space available for drop-in use. Can be part of a larger, citywide park space.	1/2 acre of neighborhood park within 1 mile of households
Urban Villages	Neighborhood Park / Useable Open Space: publicly owned or dedicated open space that is easily accessible and intended to serve the immediate urban village. This encompasses various types of open space for passive enjoyment as well as activity that includes green areas and hard-surfaced urban plazas, street parks, and pocket parks. Dedicated open spaces should be at least 10,000 ft^2 in size.	1/4 acre of neighborhood park within 1/2-mile of households

Source: SPR, 2011.

Seattle's Parks and Recreation 2017 Parks and Open Space Plan

The Draft 2017 Parks and Open Space Plan (the Draft 2017 Plan) is a six-year plan that "documents and describes SPR's facilities and lands, looks at Seattle's changing demographics, and lays out a vision for the future" (SPR, 2017). There are substantial differences between the Draft 2017 Plan and the 2011 Development Plan. In order to maintain a citywide LOS that is compliant with Washington State Recreation and Conservation Office requirements and the Growth Management Act, a citywide population-based standard of 8 acres per 1,000 residents is proposed in the Draft 2017 Plan, as opposed to the existing 1/3 acre per 100 residents goal (Exhibit 3.7–2). In addition, the individual urban village population-based open space goals would be replaced with a long-term acquisition strategy based on walkability, in accordance with updates to the Comprehensive Plan.

The Draft 2017 Plan also takes a slightly different approach to identifying open space gaps and prioritizing areas for acquisition by considering a broader range of public resources as parks and open spaces (including public school property, major institutions and universities, and other non-park owned property), and considering equity and walkability in addition to population density. The proposed LOS standard and the walkability guidelines are summarized in Exhibit 3.7–2.

Exhibit 3.7–2   2017 Parks and Open Space Plan Draft LOS Standard and Walkability Guidelines

Guidelines/Standard	Location	Description
Population-based standard	Citywide	8 acres/1,000 residents
Walkability standard	Within Urban Villages	5-minute walkability
	Outside Urban Villages	10-minute walkability

Source: SPR, 2017.

Seattle Municipal Code

In certain zones, Seattle's Land Use Code (SMC Title 23) requires a minimum amount of open space for private development. When required, private open space must meet standards in SMC 23.71.014 and 23.86.018. Open space is often required as an "amenity." In Lowrise multifamily zones, new development must provide an amenity area equal

to 25 percent of the lot area, with at least 50 percent of the amenity area at the ground level. In commercial zones that allow residential development, five percent of residential floor area must be a residential amenity open to the outdoors (City of Seattle, 2016b; City of Seattle, 2016c). Although such open spaces provide benefits to Seattle residents and visitors, they are not counted in the quantities of open spaces analyzed below because they are privately owned.

EXISTING CONDITIONS

Presently, about 43 percent of the City's parks are wholly or partially located in urban villages. But only five percent of total park acreage is located in urban village boundaries (City of Seattle, 2014; City of Seattle, 2014b). Seattle's six urban centers contain the largest number of parks, while the 18 residential urban villages contain the most park acreage. Among individual urban villages, Admiral has the highest share of parkland (12 percent), while parks comprise less than one percent of land in West Seattle Junction, Greenwood-Phinney Ridge, and Morgan Junction (City of Seattle, 2014; City of Seattle, 2014b).

Under the 2015 baseline conditions, the City of Seattle meets the 2011 Development Plan goal and 2017 LOS standard by providing roughly 9.34 acres of parks and open space per every 1,000 residents and 0.93 acre of parks and open space per every 100 residents (Exhibit 3.7–3).

Exhibit 3.7–3   Baseline Condition Acres of Parks and
Open Space per Population

Population (2015)	Acres of Parks and Open Space	Acres of Parks and Open Space per Population
686,800	6,414	9.34 acres per 1,000 residents
		0.93 acre per 100 residents

Source: SPR, 2017.

Exhibit 3.7–4 shows the acreage of parks and open space for each urban village in the study area and the acres of parks and open space per 100 people under baseline conditions in 2015. Although there are no urban village scale population standards, identifying the number of acres of parks and open space per resident population is one measure to indicate how changes in population density could potentially change the relative need for additional parks and open space in urban village or neighborhood areas. Exhibit 3.7–4 also identifies urban villages in the

Exhibit 3.7–4 Baseline Conditions for Parks and Open Space Provision and Distribution

Urban Village	Acres of Parks and Open Space*	Acres of Parks and Open Space per 100 Residents (2015)**	Open Space Gap is Over Half of Urban Village (2011)	Walkability Gap is Over Half of Urban Village (2017)
23rd & Union-Jackson	63.19	0.65		
Admiral	12.33	0.61		
Aurora-Licton Springs	7.55	0.12		X
Ballard	11.54	0.07	X	
Bitter Lake Village	10.36	0.18	X	X
Columbia City	32.16	0.67		
Crown Hill	4.69	0.2		
Eastlake	6.16	0.09		
First Hill-Capitol Hill	17.73	0.03	X	
Fremont	4.25	0.07	X	
Green Lake	2.33	0.05		
Greenwood-Phinney Ridge	0.42	0.01	X	X
Lake City	4.52	0.1		
Madison-Miller	7.85	0.16		
Morgan Junction	0.66	0.03	X	X
North Beacon Hill	6.28	0.24		X
North Rainier	66.83	1.53	X	
Northgate	19.88	0.25	X	X
Othello	11.52	0.23		X
Rainier Beach	31.52	1.16		
Ravenna	2.85	0.1	X	
Roosevelt	0.15	0.01		
South Park	15.39	0.67		
Upper Queen Anne	0	0		
Wallingford	4.49	0.08		
West Seattle Junction	1.39	0.02	X	
Westwood-Highland Park	0	0	X	X
Outside Urban Villages	6,032	1.56		

* Parks and open space acreage in urban villages was calculated using 2014 SPR GIS data and the urban village boundaries used for the alternatives (minus expansion areas).

** Urban village population figures come from 2015 baseline housing data (Chapter 2) assuming an average household size of 1.78 people. The population outside urban villages assumes 2.06 people per household (City of Seattle, 2016).

Source: SPR, 2014; SPR, 2017.

study area that were noted in the 2011 and 2017 gap analysis findings as having shortages in distribution of open space. For the 2011 Development Plan, an open space gap over half of the urban village indicated that future park acquisition in that urban village would be necessary. Although the 2017 gap analysis has not been finalized, urban villages with walkability gaps over half their area or more are also considered for this analysis. It is likely that such areas would be slated for future acquisition and possible development projects under the 2017 Plan.

Under existing conditions, 11 of the study area urban villages were identified as having substantial open space gaps in the 2011 Development Plan and 8 were identified as having substantial walkability gaps in the Draft 2017 Plan.

3.7.2 IMPACTS

IMPACTS COMMON TO ALL ALTERNATIVES

No direct impacts to parks and open space in the form of physical disruptions, alteration, or removal of parks land would result from housing and job growth in the study area. Indirect impacts to parks and open space could occur from changes in the distribution, accessibility, use, or availability of parks and open space due to additional population growth. The primary impact to parks and open space under all alternatives would be a decrease in availability, or the acreage of park and open space land available relative to a specific number of people. Impacts to parks and open space users may be in the form of greater crowding in parks, a need to wait to use facilities, unavailable programs, or a need to travel longer distances to reach an available park facility. Population growth without a commensurate increase in the quantity of parks and open space decreases availability. The quality or level of services available within parks and open space is another factor in the determination of adequacy of parks and open space, but because measures of quality are difficult to obtain and subjective this analysis focuses on the amount of and walkability to parks and open space lands, and distribution of parks and open space.

To assess impacts to parks and open space, this Chapter uses SPR's 2011 distribution goal of 1/3 (0.33) acre of parks and open space land for every 100 residents citywide, hereafter referred to as the 2011 distribution goal, and the 8 acres per every 1,000 residents (0.80 acre per 100 residents citywide) LOS, hereafter referred to as the 2017

Exhibit 3.7–5   LOS Evaluation of Alternatives

	ALTERNATIVE 1 (2017 PARKS PLAN)*			ALTERNATIVE 2 AND ALTERNATIVE 3**		
	Population	Acres Parkland	Acres / 1,000 Residents	Population	Acres Parkland	Acres / 1,000 Residents
2015	686,800	6,414	9.34	686,800	6,414	9.34
2035	806,800	6,414	7.95	855,900	6,414	7.49
Additional Acres of Parkland Needed to Meet LOS by Seattle 2035		40			434	
With Additional Park Land		6,454	8.00		6,791	8.00

* Growth estimated in the 2017 Parks Plan is considered as the No Action scenario for this analysis.

** A rounded, 95,000 additional household growth amount is assumed for the action alternatives for the purposes of this analysis. Average household size is 1.78 persons per household.

Source: SPR, 2017.

LOS. The analysis also considers the findings of the 2011 and 2017 gap analyses in that they indicate areas where there are deficiencies in the existing parks and open space network. A project impact comes in the form of decrease in parks availability, as these urban villages will have more residents populating areas that may not have adequate park resources. All of the alternatives would meet the 2011 distribution goal. However, none of the alternatives would meet the 2017 citywide population based LOS. Exhibit 3.7–5 describes how many additional acres of park and open space land would need to be acquired for the 2017 LOS to be met. Under Alternative 1, 40 acres of park and open space land would need to be required, and under Alternatives 2 and 3 approximately 434 acres would be required.

Significant impacts are only assigned to proposals that would result in the City not meeting the citywide 2017 LOS.

For analysis purposes in this EIS, the population density per acre of park land is also assessed at the urban village level to better understand the distribution of impacts associated with the various alternatives. Exhibit 3.7–6 compares parks and open space availability by urban village under each alternative. All alternatives anticipate housing growth over the 20-year planning horizon both inside and outside urban villages, with Alternatives 2 and 3 directing more growth to urban villages than Alternative 1. To better understand the changes that would occur as a result of each of the action alternatives, the impact assessment focuses on how demand for parks and open space would change in urban villages in the study area, particularly those identified as having open space gaps or walkability gaps in the 2011 Development Plan or the Draft 2017 Plan, respectively.

Exhibit 3.7–6   Comparison of Parks and Open Space Availability Across Alternatives

**URBAN VILLAGE PARKS AND OPEN SPACE AVAILABILITY
(ACRES OF PARKS AND OPEN SPACE PER 100 RESIDENTS)**

	Baseline (2015)	Alternative 1 No Action	Alternative 2	Alternative 3	Open Space Gap (2011)	Walkability Gap (2017)
High Displacement Risk & Low Access to Opportunity						
Rainier Beach	1.16	0.88 (24%)	0.55 (53%)	0.57 (51%)		
Othello	0.23	0.17 (26%)	0.33 (+43%)	0.19 (17%)		X
Westwood-Highland Park	0.00	0.00 (0%)	0.00 (0%)	0.00 (0%)	X	X
South Park	0.67	0.51 (24%)	0.45 (33%)	0.47 (30%)		
Bitter Lake Village	0.18	0.13 (28%)	0.12 (33%)	0.12 (33%)	X	X
Low Displacement Risk & High Access to Opportunity						
Green Lake	0.05	0.04 (20%)	0.04 (20%)	0.03 (40%)		
Roosevelt	0.01	0.00 (100%)	0.00 (100%)	0.00 (100%)		
Wallingford	0.08	0.06 (25%)	0.05 (38%)	0.05 (38%)		
Upper Queen Anne	0.00	0.00 (0%)	0.00 (0%)	0.00 (0%)		
Fremont	0.07	0.05 (29%)	0.05 (29%)	0.05 (29%)	X	
Ballard	0.07	0.05 (29%)	0.04 (43%)	0.04 (43%)	X	
Madison-Miller	0.16	0.12 (25%)	0.11 (31%)	0.10 (38%)		
Greenwood-Phinney Ridge	0.01	0.01 (0%)	0.01 (0%)	0.01 (0%)	X	X
Eastlake	0.09	0.07 (22%)	0.07 (22%)	0.07 (22%)		
West Seattle Junction	0.02	0.01 (50%)	0.01 (50%)	0.01 (50%)	X	
Admiral	0.61	0.48 (21%)	0.46 (25%)	0.43 (30%)		
Crown Hill	0.20	0.13 (35%)	0.06 (70%)	0.05 (75%)		
Ravenna (2)	0.10	0.05 (50%)	0.05 (50%)	0.05 (50%)	X	
High Displacement Risk & High Access to Opportunity						
Columbia City	0.67	0.52 (22%)	0.24 (64%)	0.25 (63%)		
Lake City	0.10	0.07 (30%)	0.07 (30%)	0.07 (30%)		
Northgate	0.25	0.15 (40%)	0.06 (76%)	0.06 (76%)		X
First Hill-Capitol Hill	0.03	0.03 (0%)	0.02 (33%)	0.03 (0%)	X	
North Beacon Hill	0.24	0.19 (21%)	0.08 (67%)	0.09 (63%)		X
North Rainier	1.53	1.09 (29%)	0.64 (58%)	0.65 (58%)	X	
23rd & Union-Jackson	0.65	0.50 (23%)	0.38 (42%)	0.33 (49%)		
Low Displacement Risk & Low Access to Opportunity						
Aurora-Licton Springs	0.12	0.10 (17%)	0.09 (25%)	0.09 (25%)		X
Morgan Junction	0.03	0.02 (33%)	0.02 (33%)	0.02 (33%)	X	X
Outside Villages	1.56	1.47 (6%)	1.43 (8%)	1.44 (8%)		

Note: The acres of parks and open space within the urban villages were calculated using 2014 Seattle Parks GIS data and the urban village boundaries used for the alternatives. The number of residents residing within urban villages was calculated using housing data provided in Chapter 2, with an average household of 1.78 residents per housing unit applied for urban villages and 2.06 residents per housing unit applied for areas outside urban villages (City of Seattle, 2016).

Source: SPR, 2014; SPR, 2011.

However, it is important to note that 95 percent of City parks and open space land is outside of urban village boundaries. Therefore, it is likely that parks and open space near urban villages that lack sufficient facilities would also experience greater demand as the urban village populations grow. This growth would exacerbate existing deficiencies.

IMPACTS OF ALTERNATIVE 1 NO ACTION

Parks and open space impacts under Alternative 1 No Action would be the same as those evaluated for the Preferred Alternative in the Seattle 2035 Comprehensive Plan Final EIS (City of Seattle, 2016). Although Alternative 1 would meet the 2011 distribution goal, it would not meet the 2017 LOS unless 40 acres of park and open space land is acquired. According to the Draft 2017 Plan, acquiring the land to mitigate for projected growth under Alternative 1 is feasible (SPR, 2017). Therefore, existing and future parks and open space resources can serve the growth anticipated under the Seattle 2035 Comprehensive Plan, even though gaps in geographic availability or shortfalls from optimal location, size, or number of parks could remain over the long-term.

Exhibit 3.7–7 details the urban villages identified as having open space and/or walkability gaps and the potential reductions in park availability

Housing and job growth over the 20-year planning period would generate more demand for parks, recreation facilities, and open space across the city. Urban villages would see residential growth that would proportionately increase demand for parks and open space close to these areas. As certain urban villages have an existing shortage relative to the goal, growth would widen the existing gap between supply of and demand for parks and open space, resulting in less availability, particularly in the urban villages identified in Exhibit 3.7–7. Impacts could also occur on parks and open space in urban villages served by current and future light rail transit as these parks and open spaces would become more accessible to people residing elsewhere. In addition, there would also be an increased potential for impacts on parks and open space in urban villages served by current and future light rail transit as these parks and open spaces would become more accessible to people residing outside of the urban villages.

Significant open space gaps in single-family areas in northwest Seattle, northeast Seattle, and West Seattle would likely continue. As neighborhoods outside urban villages grow under Alternative 1, impacts on parks and recreation could increase as demand for parks and open space increases.

Exhibit 3.7–7   Changes in Park Availability in Urban Villages with Open Space and/or Walkability Gaps, Alternative 1 No Action

	URBAN VILLAGE PARKS AND OPEN SPACE AVAILABILITY (ACRES OF PARKS AND OPEN SPACE PER 100 RESIDENTS)			
	Baseline (2015)	Alternative 1 No Action	Open Space Gap (2011)	Walkability Gap (2017)
High Displacement Risk & Low Access to Opportunity				
Othello	0.23	0.17 (26%)		X
Bitter Lake Village	0.18	0.13 (28%)	X	X
Low Displacement Risk & High Access to Opportunity				
Fremont	0.07	0.05 (29%)	X	
Ballard	0.07	0.05 (29%)	X	
West Seattle Junction	0.02	0.01 (50%)	X	
Ravenna (2)	0.10	0.05 (50%)	X	
High Displacement Risk & High Access to Opportunity				
Northgate	0.25	0.15 (40%)		X
North Beacon Hill	0.24	0.19 (21%)		X
North Rainier	1.53	1.09 (29%)	X	
Low Displacement Risk & Low Access to Opportunity				
Aurora-Licton Springs	0.12	0.10 (17%)		X
Morgan Junction	0.03	0.02 (33%)	X	X

Note: The acres of parks and open space within the urban villages were calculated using 2014 Seattle Parks GIS data and the urban village boundaries used for the alternatives. The number of residents residing within urban villages was calculated using housing data provided in Chapter 2, with an average household of 1.78 residents per housing unit applied for urban villages and 2.06 residents per housing unit applied for areas outside urban villages (City of Seattle, 2016).

Source: SPR, 2014; SPR, 2011.

IMPACTS OF ALTERNATIVE 2

Growth under Alternative 2 would have similar types of impacts to Alternative 1, but to a larger degree due to the potential for more growth.

Under Alternative 2, Othello would have an increase in parks and open space availability because urban village boundaries would expand to include existing parkland. Population and job growth in Alternative 2 would generate more demand for parks and open space than Alternative 1 in study area urban villages. This impact would be greatest in urban villages with the largest increases in growth under Alternative 2 compared to Alternative 1, such as Ballard, Northgate, First Hill-Capitol Hill, North Beacon Hill, North Rainier, and Aurora-Licton Springs (Exhibit 3.7–8).

Exhibit 3.7–8   Changes in Park Availability in Urban Villages with Open Space and/or Walkability Gaps, Alternative 2

	URBAN VILLAGE PARKS AND OPEN SPACE AVAILABILITY (ACRES OF PARKS AND OPEN SPACE PER 100 RESIDENTS)			
	Baseline (2015)	**Alternative 2**	**Open Space Gap (2011)**	**Walkability Gap (2017)**
High Displacement Risk & Low Access to Opportunity				
Othello	0.23	0.33 (+43%)		X
Bitter Lake Village	0.18	0.12 (33%)	X	X
Low Displacement Risk & High Access to Opportunity				
Fremont	0.07	0.05 (29%)	X	
Ballard	0.07	0.04 (43%)	X	
West Seattle Junction	0.02	0.01 (50%)	X	
Ravenna (2)	0.10	0.05 (50%)	X	
High Displacement Risk & High Access to Opportunity				
Northgate	0.25	0.06 (76%)		X
First Hill-Capitol Hill	0.03	0.02 (33%)	X	
North Beacon Hill	0.24	0.08 (67%)		X
North Rainier	1.53	0.64 (58%)	X	
Low Displacement Risk & Low Access to Opportunity				
Aurora-Licton Springs	0.12	0.09 (25%)		X
Morgan Junction	0.03	0.02 (33%)	X	X

Note: The acres of parks and open space within the urban villages were calculated using 2014 Seattle Parks GIS data and the urban village boundaries used for the alternatives. The number of residents residing within urban villages was calculated using housing data provided in Chapter 2, with an average household of 1.78 residents per housing unit applied for urban villages and 2.06 residents per housing unit applied for areas outside urban villages (City of Seattle, 2016).

Source: SPR, 2014; SPR, 2011.

IMPACTS OF ALTERNATIVE 3

Impacts to parks and open space in Alternative 3 would be similar to Alternative 2. Compared to Alternative 2, urban villages across the study area would see similar level of parks and open space availability reduction; however, with the different distribution of growth, certain urban villages would experience higher percentages of growth than under Alternative 2. However, overall there would be similar reductions in park and open space availability would occur under Alternatives 2 and 3 in most of the urban villages with walkability or distribution gaps (Exhibit 3.7–9). However, under Alternative 3 there would be less of a decrease in availability in First Hill–Capitol Hill and North Beacon Hill. In addition, under Alternative 3 the Othello Urban Village would experience a reduction in parks and open space availability due to its smaller boundary expansion.

Exhibit 3.7–9   Changes in Park Availability in Urban Villages with Open Space and/or Walkability Gaps, Alternative 3

	URBAN VILLAGE PARKS AND OPEN SPACE AVAILABILITY (ACRES OF PARKS AND OPEN SPACE PER 100 RESIDENTS)			
	Baseline (2015)	**Alternative 3**	**Open Space Gap (2011)**	**Walkability Gap (2017)**
High Displacement Risk & Low Access to Opportunity				
Othello	0.23	0.19 (17%)		X
Bitter Lake Village	0.18	0.12 (33%)	X	X
Low Displacement Risk & High Access to Opportunity				
Fremont	0.07	0.05 (29%)	X	
Ballard	0.07	0.04 (43%)	X	
West Seattle Junction	0.02	0.01 (50%)	X	
Ravenna (2)	0.10	0.05 (50%)	X	
High Displacement Risk & High Access to Opportunity				
Northgate	0.25	0.06 (76%)		X
North Beacon Hill	0.24	0.09 (63%)		X
North Rainier	1.53	0.65 (58%)	X	
Low Displacement Risk & Low Access to Opportunity				
Aurora-Licton Springs	0.12	0.09 (25%)		X
Morgan Junction	0.03	0.02 (33%)	X	X

Note: The acres of parks and open space within the urban villages were calculated using 2014 Seattle Parks GIS data and the urban village boundaries used for the alternatives. The number of residents residing within urban villages was calculated using housing data provided in Chapter 2, with an average household of 1.78 residents per housing unit applied for urban villages and 2.06 residents per housing unit applied for areas outside urban villages (City of Seattle, 2016).

Source: SPR, 2014; SPR, 2011.

3.7.3 MITIGATION MEASURES

Given greater overall demand for parks and open space in the study area, SPR should consider these growth projections for the next open space gap analysis to address future potential impacts through the next Development Plan. According to the 2017 LOS, approximately 40 acres of new parks and open space land would be required under Alternative 1, and approximately 434 acres would be required under Alternatives 2 and 3. Provision of additional parks and open space land should occur in urban villages with substantial walkability gaps that would see a reduction in park and open space availability.

The mitigation strategies outlined in the Seattle 2035 Comprehensive Plan EIS would provide tools necessary to accomplish the City's parks and open space goals. One of these strategies is to incorporate incentives and other regulatory tools to encourage and enforce developers to set aside publicly accessible usable open space. Examples of specific vehicles to achieve mitigation in this way include impact fees for open space, or a transfer of development rights (TDR) for open space that could be implemented in certain zones or locations.

3.7.4 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

Development under Alternatives 1, 2 and 3 would have significant adverse impacts to parks and open space. However, these impacts can be avoided through mitigation as described above

3.8

PUBLIC SERVICES AND UTILITIES.

This chapter discusses Public Services and Utilities potentially affected by the HALA Mandatory Housing Affordability (MHA) program. Public services and utilities include: Police Services, Fire and Emergency Medical, Public Schools, Water, Sewer and Drainage and Electricity. Impacts on public parks and recreation are evaluated in Section 3.7 Open Space and Recreation.

Analysis includes comparison of the impacts on public services and utilities associated with growth as a result of the proposed project under the alternatives. Impacts are summarized at the citywide scale, with a focus on the Urban Villages (UVs) and their proposed expansion areas at a neighborhood scale.

3.8.1 AFFECTED ENVIRONMENT

The existing conditions described below are based on the City of Seattle's 2035 Comprehensive Plan EIS. Public services and utilities that were not analyzed as a part of the Comprehensive Plan but would be affected by the MHA program were identified and added to this analysis.

The City of Seattle is currently experiencing a construction boom, with over 17,000 housing units in the permitting pipeline or under construction as of December 2016. As a result, there is an associated increase in population and use of public services and utilities.

PUBLIC SERVICES

Police Services

The City of Seattle Police Department serves five precincts within the city's jurisdictional boundary: north, west, east, south and southwest. Urban villages within each precinct are as follows:

- **North Precinct:** University District, Northgate, Ballard, Bitter Lake, Fremont, Lake City, Aurora-Licton Springs; Crown Hill, Green Lake, Greenwood-Phinney Ridge, Roosevelt, Wallingford, and Ballard-Interbay-Northend

- **East Precinct:** First/Capitol Hill, 23rd & Union-Jackson, Eastlake, and Madison-Miller

- **West Precinct:** Downtown South Lake Union, Uptown, Upper Queen Anne, Ballard-Interbay-Northend, and Greater Duwamish

- **South Precinct:** Columbia City, North Beacon Hill, Othello, and Rainier Beach

- **Southwest Precinct:** West Seattle Junction, Admiral, Morgan Junction, South Park, Westwood-Highland Park, and Greater Duwamish

Services such as patrol officers and 9-1-1 responders, bike patrol, anti-crime team, on-site liaison attorney, burglary/theft detectives, community police teams and crime prevention are provided depending on the specific characteristics and needs of each precinct (City of Seattle, 2015).

The Seattle 2035 Comprehensive Plan made the following observations with respect to existing capacity:

- The South Precinct station is currently near capacity for staffing space and in need of seismic upgrades. If additional staff were hired, it is likely that the station would be renovated (possibly including a building addition), additional parking would be provided, and seismic upgrades would be made.

- Increased staffing in the North Precinct over the next 20 years will be accommodated at a planned facility located at the intersection of North 130th Street and Aurora Avenue North. This station will provide sufficient building area to meet the needs of both existing and future staff. Land for the North Precinct facility has already been acquired.

- In other precincts, no growth-related facility needs are identified at this time. The Southwest Precinct station has capacity for 13 additional staff members, which will likely be sufficient to accommodate staffing for the 20-year planning period. Ongoing planning is conducted for the East and West precincts to help determine staffing and related facility needs (if any) in the coming year.

The Seattle Police Department established an average emergency response time target of seven minutes, which it currently meets (City of Seattle, 2035).

Fire and Emergency Medical Services

The Seattle Fire Department provides a full-range of fire protection, prevention and emergency medical services, which are defined citywide in service areas allocated through battalions and stations. Urban villages within each applicable Battalion are as follows:

- **Battalion 2:** Downtown, First/Capitol Hill, South Lake Union, Madison-Miller

- **Battalion 4:** Uptown, Ballard, Bitter Lake, Fremont, Crown Hill, Greenwood-Phinney Ridge, Upper Queen Anne, Wallingford, Ballard-Interbay-Northend

- **Battalion 5:** First/Capitol Hill, 23rd & Union-Jackson, Columbia City, North Beacon Hill, Othello, Rainier Beach, Greater Duwamish

- **Battalion 6:** University District, Northgate, Lake City, Aurora-Licton Springs, Eastlake, Green Lake, Roosevelt, Wallingford

- **Battalion 7:** West Seattle Junction, Admiral, Morgan Junction South Park, Westwood-Highland Park, Greater Duwamish

The Seattle Fire Department responds to emergency medical services (EMS) and fire incidents, of which approximately 80 percent are EMS related. The Seattle Fire Department monitors and documents response times based on the National Fire Protection Association (NFPA) Standard Guidelines. Response standards are established by specifying the minimum criteria for effectively and efficiently delivering fire suppression and emergency medical services. The target is to meet the NFPA standards 90 percent of the time. On average, the department currently meets EMS response standards 86 percent of the time and fire response standards 89 percent of the time (City of Seattle, 2015).

The Seattle Comprehensive Plan identified anticipated increases in service demands for fire protection in the following areas:

- Fire Station 2 in South Lake Union Urban Center—new fire station planned due to growth in the area;

- Fire Station 31 in portions of Bitter Lake, Aurora-Licton Springs, Crown Hill and Greenwood-Phinney Ridge urban villages. Fire Station 31 is the second busiest engine company in the city, and additional fire resources may be necessary to address current and projected growth (City of Seattle, 2015).

According to the EMS Demand Forecast model, a study of emergency medical services demand based on demographics, EMS services are

likely to be needed in the following neighborhoods/urban villages due to projected demand:

- Denny Regrade (Uptown Urban Center);
- South Lake Union (South Lake Union Urban Center);
- Broadview—Bitter Lake—Haller Lake (multiple urban villages and surrounding areas);
- Aliki/Admiral (multiple urban villages and surrounding areas); and
- Rainier Valley (multiple urban villages and surrounding areas).

Public Schools

Seattle Public Schools (SPS) provides public education from kindergarten through 12th grade. The Comprehensive Plan analyzed public schools through sectors. Sectors and their respective urban villages are included below.

- **Sector 1:** Ballard, Fremont, Aurora-Licton Springs, Green Lake, Greenwood-Phinney Ridge, Wallingford;
- **Sector 2:** Northgate, Lake City, Roosevelt;
- **Sector 3:** Uptown;
- **Sector 4:** Eastlake;
- **Sector 5:** First/Capitol Hill, 23rd & Union-Jackson, Madison-Miller;
- **Sector 6:** Admiral, Morgan Junction;
- **Sector 7:** South Park; and
- **Sector 8:** North Rainier, Columbia City, North Beacon Hill, Rainier Beach.

The Seattle Public Schools 2012 Facilities Master Plan (SPS, 2012) identified enrollment projections through 2022 for elementary, middle and high schools in Seattle. The projection is 13 years shorter than the 2035 planning horizon of the Seattle Comprehensive Plan. The Facilities Master Plan estimates that the projected growth of 9,000 students would surpass the existing capacity. Student enrollment is anticipated to grow with population increase, which would affect future capacity (City of Seattle, 2015). To address anticipated enrollment analyzed in the Facilities Master Plan, the Building Excellence (BEX) Phase IV capital program would construct 18 new or replacement schools and provide seismic upgrades for 37 additional schools, adding capacity for 7,900

additional students. Projects currently underway as parts of the BEX Phase IV Program include:

- Arbor Heights Elementary, replacement of existing school on the same site;
- Bagley Elementary: modernization and addition of classroom and core facilities;
- Fairmount Park Elementary: modernization and addition of classroom and core facilities;
- Jane Addams Building: re-purpose as a middle school;
- Jane Addams K-8: new replacement;
- Lincoln Building: modernize and repurpose as a comprehensive high school;
- Loyal Heights Elementary: modernize and add classroom and core facilities;
- Meany Middle School: modernize and repurpose;
- Northeast Elementary: new construction with a capacity of 500-650 seats;
- Nova Alternative High School: modernize and add classroom and core facilities;
- Olympic Hills Elementary: replacement of existing school on same site;
- Queen Anne Elementary: add classroom and core facilities;
- Schmitz Park Elementary: repurposing for elementary seats, construction of a new building;
- Wilson Pacific Elementary and Middle School: new construction;
- Wing Luke Elementary: replacement of existing school on same site; and
- World School at T.T. Minor: repurpose and modernize.

An important element to public school infrastructure capacity includes sidewalks that are used for transportation to and from schools. SDOT identifies the preferred routes through their *Safe Routes to School* program. Out of the 105 schools in the SPS school district, approximately 25 are missing sidewalk infrastructure (City of Seattle, 2015). Of these, urban villages that are near or contain schools lacking full sidewalk infrastructure walking routes include: Northgate, Bitter Lake, Lake City, North Beacon Hill, Othello, Rainier Beach, South Park, and Greater Duwamish.

UTILITIES

Water, Sewer, and Drainage Systems

Municipal water is provided to Seattle Public Utilities (SPU) customers from the Cedar River watershed and the South Fork of Tolt Reservoir, and a small amount of groundwater is obtained from the SPU's Seattle Well Fields located south of the City. Approximately 1,880-miles of transmission and distribution pipes distribute water to Seattle retail and wholesale customers (City of Seattle, 2015).

Capacity and system needs are monitored by the Puget Sound Regional Council and Washington Office of Financial Management, which uses a 20 year water demand forecast based on various factors, including growth projections. The existing water system currently has excess capacity to accommodate population growth anticipated in the Seattle 2035 Comprehensive Plan, due to declining average household usage (City of Seattle, 2015). To control demand, SPU uses management strategies, such as water availability certificates and developer improvements (City of Seattle Draft EIS, 2015).

SPU drainage infrastructure includes three types of systems: combined (carries sewage and stormwater through one pipe to a wastewater treatment plant (WWTP)), fully separated (separate piped systems for stormwater and sanitary sewers, which discharge to surface water and a WWTP, respectively) and partially separated sewer and storm drain systems (roads drain to stormwater system, where the street runoff discharges to surface waters, but roofs drains and private property drainage discharges to the combined system), each serving approximately one-third of the City of Seattle. King County Wastewater Treatment Division (KC) and SPU own and operate combined sewer systems that serve about one-third of the city. Each combined sewer system is a piped network carrying both sanitary wastewater and stormwater runoff to a King County WWTP (City of Seattle, 2015).

New developments and redevelopments are typically required to comply with the following measures that ensure available water and drainage capacity prior to permit issuance.

Water Availability Certificates and Conservation. SPU uses a hydraulic network model to evaluate capacity and make a determination of water availability. If there is a gap between what the existing system can provide and what a development needs, the developer is required to upgrade the existing system to meet demand (SPU 2012). New
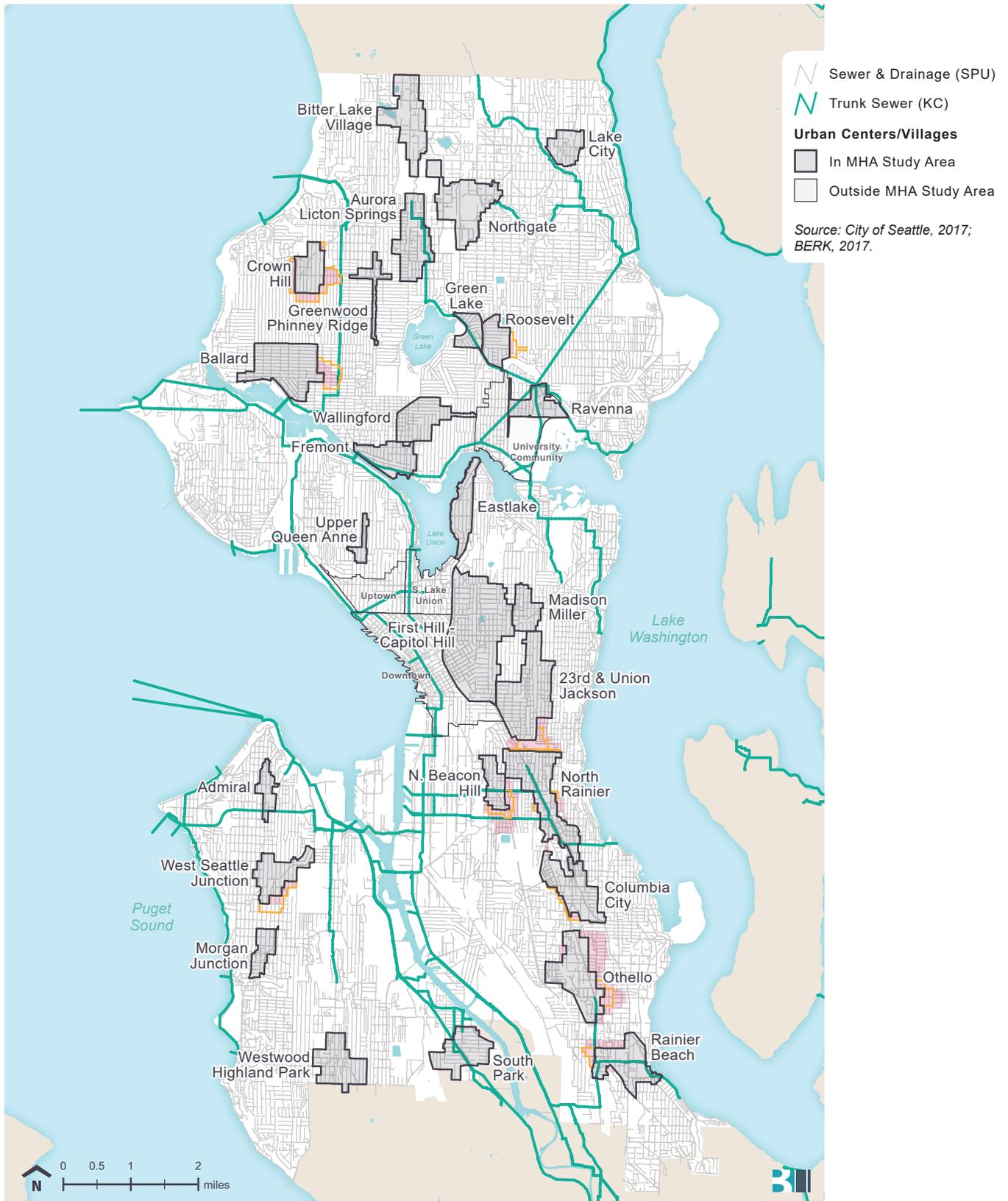
Exhibit 3.8–1   SPU Combined Pipe and KC Metro Wastewater Systems

Legend:
- Sewer & Drainage (SPU)
- Trunk Sewer (KC)

Urban Centers/Villages
- In MHA Study Area
- Outside MHA Study Area

Source: City of Seattle, 2017; BERK, 2017.

development and redevelopment is required by the plumbing code to include efficient plumbing fixtures. This requirement will reduce the overall impact to water demand resulting from the proposed alternatives (Seattle 2035 Comprehensive Plan).

Developer Sewer Improvements. In areas that are not designated as capacity constrained, developers are required to demonstrate that the downstream stormwater system has sufficient capacity for additional flow. Some parts of the City are served by sewers that are less than 12-inch diameter. These areas are likely at or near their capacity and downstream pipes from new development would have to be upgraded to a minimum 12-inch diameter. Redevelopments may reduce per-capita sewer demand, as newer, low- or no-flow plumbing fixtures and equipment replaces older, less efficient, installations. These practices may help reduce the overall impact to the wastewater system (City of Seattle, 2015).

Capital Projects. SPU also identifies candidate capital projects which the City implements independent of private development. A list of priority areas for Capital Improvement Projects was identified in the in the 2004 Comprehensive Drainage Plan and the 2006 Wastewater System Master Plan. These lists are updated and refined as additional data is available. Priority is determined based on the impact on public health, safety, and the environment. Capital projects to reduce combined sewer overflows (CSOs) are identified in the 2015 Plan to Protect Seattle's Waterways. Under the SPU Asset Management system, projects must be justified through a business case process that establishes whether a problem or opportunity is timely and important, and whether the proposed solution is superior to alternatives based on a triple bottom line analysis (economic, environmental and social) of life cycle costs and benefits (City of Seattle, 2015). Additionally, the King County Long-term Control Plan (LTCP) identifies ways to reduce CSOs overflow into Seattle's local water bodies. The LTCP identifies which CSOs will be fixed, solutions, cost and construction schedule. The LTCP is required by the Department of Ecology to be updated every five years (King County, 2016).

Seattle Stormwater Code. Current stormwater regulations require new development and redevelopment to mitigate new impervious surfaces and pollution generating surfaces with flow control and/or water quality treatment. City of Seattle stormwater regulations protect people, property and the environment from damage caused by stormwater runoff. The stormwater codes satisfy the City's obligation to comply with their Washington State Municipal Stormwater Permit—National

Pollutant Discharge Elimination System (NPDES) Permit, issued by the Washington State Department of Ecology (City of Seattle, 2015).

The stormwater regulations address how stormwater from development needs to be controlled and/or treated using on-site stormwater management including green stormwater infrastructure (GSI) and other measures. The code also identifies erosion control requirements for construction and grading activities. The erosion control, flow control and treatment requirements help to maintain or mitigate the conditions of the downstream system and discharge location and may reduce the overall impact of development. New development must comply with these regulations, standards and practices and may help reduce the overall impact to the drainage system. Redevelopment that replaces existing impervious surface and provides flow control may reduce runoff rates even below current levels (City of Seattle, 2015). There are areas (single family zoning) in the City where flow control is not required and thus runoff rates can still cause cumulative impacts in downstream systems especially during intense storms. Developers, outside of single family zones, are required to demonstrate that the downstream system has sufficient capacity for changes in stormwater runoff.

Informal drainage generally exists in areas where there are no sidewalks and limited systems of drainage infrastructure to collect stormwater runoff. Areas of Seattle that are primarily served by "informal" drainage systems of ditch and culverts and/or surface drainage frequently experience drainage and flooding issues. In areas of informal drainage the developer may be required to extend the drainage main. The current Right of Away Improvement Manual (ROWIM) also requires some development to install sidewalks with curb and gutter which can affect the drainage patterns (City of Seattle, 2012). Refer to Exhibit 3.8–2 and Figure 3.9–4 in the Seattle 2035 Comprehensive Plan Update EIS (City of Seattle, 2015) for the location of stormwater capacity constrained areas, as well as the extent of informal ditch and culvert drainage. Due to the limitations of areas with informal drainage, these locations are more constrained for development with respect to stormwater infrastructure. In urban villages and centers, sidewalks must be constructed when any number of new housing units are built, with certain exceptions. SPU and SDOT are currently developing options in the ROWIM to allow for low cost sidewalk improvements for small scale developments in areas of informal drainage.

HALA

Legend

N Stream

N Ditch and Culvert
Drainage System

Capacity Constrained
Basin—Densmore

Urban Centers/Villages

In MHA Study Area

Outside MHA Study Area

*Source: City of Seattle, 2017;
BERK, 2017.*
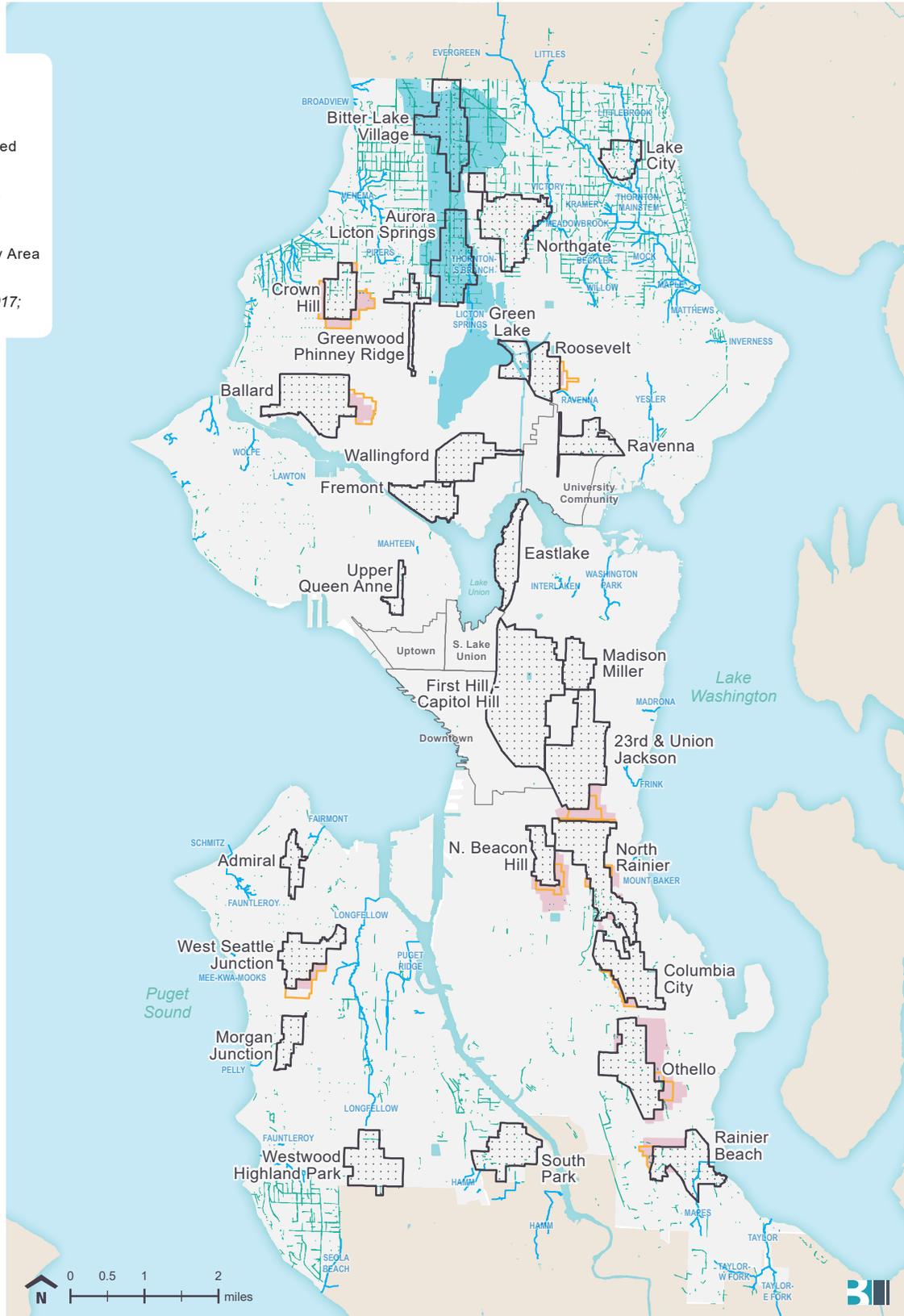
Exhibit 3.8–2   Capacity Constrained Areas

Seattle City Light

Seattle City Light (SCL) has been supplying electricity to Seattle since 1905. SCL supplies hydroelectric power to substations throughout the SCL service area, which conveys power to users (City of Seattle, 2015). Seattle City Light's Six-Year Strategic Business Plan and the state-mandated Integrated Resource Plan are used to insure adequate retail revenue, and necessary physical infrastructure and energy resources to meet the City's demand due to projected economic or population growth (City of Seattle, 2015).

New developments and redevelopments are typically required to comply with the following requirements that ensure available electrical capacity before development occurs.

Energy Benchmarking. The Energy Benchmarking and Reporting Program adopted in 2010 and administered by the City's Office of Sustainability & Environment, requires owners of non-residential and multifamily buildings (20,000 square feet or larger) to track energy performance and annually report to the City of Seattle. This allows building owners to understand and better manage their building's energy usage (City of Seattle, 2015).

Seattle Energy Code. Seattle's commercial and residential energy code sets a baseline for energy efficiency in new construction and substantial alterations (City of Seattle, 2015).

3.8.2 IMPACTS

There would be no direct impacts to public services and utilities from the proposed zoning changes under the MHA program. Indirectly, however, development resulting from implementation of proposed zoning changes would cause substantial population increases in some areas. Population growth generally increases demand for public services, but more compact patterns of growth can also reduce the distances that emergency vehicles need to travel to respond to service calls. Similarly, population growth increases demand on utilities, regardless of density, but higher density can concentrate demand and cause local capacity problems. See Exhibit 2–7 in Chapter 2 for a detailed description of the MHA EIS residential and commercial growth estimates.

IMPACTS COMMON TO ALL ALTERNATIVES

Water System, Sewer, and Drainage—Seattle City Light

Future development under any of the alternatives would likely result in greater demands on localized areas of the water supply, sewer system, distribution system, and electric power. However, SPU and SPL have methods in place that ensure development is not endorsed without identification of demand and availability of utilities, including meeting fire code requirements for new developments and redevelopments. Some development is required to improve stormwater and drainage systems. However, small scale development in areas of informal drainage could have an impact on localized stormwater drainage. All projects must comply with the minimum requirements in the Seattle Stormwater Code (SMC 28.805), even where drainage control review is not required.

The following urban villages, all north of 85th St. are in areas with a large amount of informal drainage.

- Crown Hill
- Aurora-Licton Springs
- Northgate
- Bitter Lake
- Lake City

Of these villages, Bitter Lake and Aurora-Licton Springs also overlap capacity constrained areas, and all urban villages have portions served by ditch/culvert systems which are inherently capacity constrained.

Crown Hill is the only urban village boundary expansion area of these villages. The expansion area would include blocks north of 85th Street with informal drainage.

IMPACTS OF ALTERNATIVE 1 NO ACTION

Alternative 1 is based on the growth strategy of the Seattle 2035 Comprehensive Plan and assumes that MHA would not be implemented in the study area. No area-wide zoning changes or affordable housing requirements would take place. Under Alternative 1, redevelopment, demolition, and new construction projects could occur in the study area under the existing zoning.

Police

As identified in the Existing Conditions subsection above, the South Precinct is currently at capacity; any future growth would result in an impact to the South Precinct. If the planned North Precinct is built, there would be adequate capacity for future growth. In other precincts, impacts would vary, depending on the distribution of growth under the No Action Alternative. Demand on police services would be identified and managed as growth occurs in the City over time (City of Seattle, 2015).

Fire and Emergency Services

Under the No Action alternative, growth would occur and potentially result in an increase in call volumes. As identified in the Existing Conditions above, existing growth trends in South Lake Union Urban Center (Fire Station 2) and portions of Bitter Lake, Aurora-Licton Springs, Crown Hill and Greenwood-Phinney Ridge urban villages (Fire Station 31), could contribute to increased service call volumes and potential slower average response times in these areas. However, the City would continue to manage fire and EMS services in the city as a whole in view of planned housing and employment growth (City of Seattle, 2015).

Public Schools

Under the No Action alternative, growth would continue to occur based on the preferred alternative identified in the Seattle 2035 Comprehensive Plan. For SPS, growth is expected to be most evident in Northwest Seattle, Northeast Seattle, Downtown/Lake Union and Capitol Hill/ Central District. The Northwest Seattle, Northeast Seattle and Capitol Hill/Central Districts currently have the capacity to serve potential growth (City of Seattle, 2015).

IMPACTS OF ALTERNATIVE 2

Alternative 2 would revise the existing Land Use Code, resulting in the potential for 63,070 housing units within the EIS study area, an increase of almost 40 percent in housing units from the No Action Alternative of 45,361 housing units. The overall effect would be an additional 17,709 housing units more than would be developed within the planning area under Alternative 1 (see Exhibit 2–7). The additional units would result in an associated population increase of approximately 31,522 residents (based on population generation factor of 1.78 average household sizes in Hub Urban Villages (City of Seattle, 2015). This would be consistent with the Comprehensive Plan's direction of future growth in identified urban villages, which are typically characterized by higher densities.

Police

The pattern of growth under Alternative 2 would be denser in some areas, resulting in a greater concentration of people within a precinct that the police department would have to serve. As identified, the South Precinct is currently at capacity and serves the urban villages of Columbia City, North Beacon Hill, Othello and Rainier Beach and the surrounding areas. Alternative 2 would add the potential for 3,959 housing units (1,359 more than under Alternative 1) to these urban villages in the South Precinct. Therefore, implementation of the proposed project under Alternative 2 could result in additional impacts to police services in the South Precinct above those expected under the Seattle 2035 Comprehensive Plan. However, if the planned North Precinct is built, there would be adequate capacity for future growth. In other urban villages, demand on police services would be identified and managed as projects under the MHA are implemented.

Fire and Emergency Services

The pattern of growth would result in a greater concentration of people within an area (Battalion) that fire and emergency would have to serve. Similar to the No Action Alternative, growth in portions of Bitter Lake, Aurora-Licton Springs, Crown Hill and Greenwood-Phinney Ridge urban villages (Fire Station 31), could contribute to increased service call volumes and potential slower average response times in these urban villages. Alternative 2 has the potential to add a total of 4,465 housing units (965 more than under Alternative 1) to urban villages that Fire Station 31 serves. Therefore, implementation of the proposed project under Alternative 2 would result in a higher number of housing units that

would need fire and emergency services and therefore could result in additional impacts to Fire Station 31. In other urban villages, demand on fire and emergency services would be identified and managed as the project is implemented.

Public Schools

Population growth would increase student enrollment in various urban villages throughout the city. Approximately 30 percent of SPS's schools are located in urban villages. Encouraging population growth in urban villages could result in the exceedance of maximum enrollment levels. SPS has calculated enrollment through the 2021/2022 school year, while the MHA is projected through 2035. SPS would respond to the exceedance of capacity as it has done in the past, by adjusting school boundaries and/or geographic zones, adding or removing portables, adding/renovating buildings, reopening closed buildings or schools, and/or pursuing future capital programs. If the MHA program is adopted, SPS would adjust their enrollment projections accordingly for the next planning cycle.

The rise in enrollment at public schools in urban villages will impact SPS transportation services. The Northgate, Bitter Lake, Lake City, North Beacon Hill, Othello, Rainier Beach, South Park, Greater Duwamish urban villages are currently experiencing strain on existing deficient sidewalk infrastructure. As a result, the increased school capacity in these villages would subsequently burden the existing sidewalk infrastructure even further, posing a safety risk to pedestrian students.

IMPACTS OF ALTERNATIVE 3

Alternative 3 would revise the existing Land Use Code resulting in the potential for 62,858 housing units, an increase of approximately 39 percent in housing units over the No Action Alternative of 45,361 housing units. The overall effect would be an additional 17,497 housing units more than would be developed on the same number of existing parcels (see Exhibit 2–7). The additional units would result in an associated population increase of approximately 31,144 residents, based on population generation factor of 1.78 average household size in Hub Urban Villages (City of Seattle, 2015). This would be consistent with the Comprehensive Plan's direction of future growth in identified urban villages, which are typically characterized by higher densities.

Police

Impacts to police services would be the similar to those identified for Alternative 2. Alternative 3 has the potential to add a total of approximately 3,272 housing units to the urban villages in the South Precinct, which is approximately 687 fewer units in the South Precinct urban villages than in Alternative 2. As a result, impacts related to police services would be slightly less in Alternative 3. However, implementation of Alternative 3 would still likely result in impacts to police services in the at-capacity South Precinct due to a potential increase in demand. In other urban villages, impacts on police services as a result of demand increases would be identified and managed during the project approval process.

Fire and Emergency Services

Impacts to fire and emergency services would be similar to those identified in Alternative 2. Alternative 3 has the potential to add a total of approximately 5,184 housing units to urban villages that Fire Station 31 serves, which is approximately 719 more units in the service area of Fire Station 31 than Alternative 2. As a result, impacts related to fire and emergency service could be slightly more than those of Alternative 2. However, implementation of Alternative 3 would still likely result in impacts to fire and emergency services as a whole due to the potential for increased demand. In other urban villages, impacts on fire and emergency services as a result of demand increases would be identified and managed during the project approval process.

Public Schools

Impacts to public schools would be the same as those identified in Alternative 2.

COMPARISON OF THE ALTERNATIVES

Compared to the No Action Alternative, the more compact urban development patterns associated with Alternatives 2 and 3 would be more efficient to serve and less impactful to police and fire and emergency services, primarily because residents would be located closer to service areas, reducing service time response demands. Additionally, in urban areas where infrastructure is already in place, the extension of public services and utilities is typically less difficult and less costly than

in suburban and rural areas where there is less existing infrastructure and greater distances to cover. The concentration of development would likely allow for more efficient use of existing infrastructure associated with public services and utilities.

3.8.3 MITIGATION MEASURES

Mitigation recommendations proposed in Section 3.8.3 of the Seattle 2035 Comprehensive Plan EIS would also apply to the potential impacts identified for this project, including prioritizing identified needs in areas that currently experience deficiencies and are anticipated to grow in number of residences. No other mitigation would be required.

Additional mitigation measures to address stormwater drainage impacts in areas of informal drainage could be considered by the City. The City could strengthen tools and regulations to ensure that systematic stormwater drainage improvements are made at the time of small scale infill developments in areas of informal drainage. Tools could include incorporating drainage design techniques in the low cost sidewalk improvements section of the Right of Way Improvements Manual.

Another potential tool is to establish a latecomer agreement mechanism for sidewalk / drainage improvements. This tool would allow homeowners and builders of small scale development projects to sign an agreement to contribute to future block-scale sidewalk / drainage improvements at the time the City is prepared to construct a block-scale improvement in the area. The tool could be combined with low-cost loan financing assistance from the city.

3.8.4 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

No significant unavoidable impacts to public services or utilities are anticipated at this time for any of the proposed alternatives. Existing local or statewide regulatory framework would apply at the time of development that would identify any specific project-level impacts and would be addressed on a project-by-project analysis.

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3.9

AIR QUALITY AND GREENHOUSE GAS EMISSIONS.

This chapter analyzes potential impacts to air quality and climate change in the study area.

The alternatives considered in this EIS may contribute to regional air quality impacts. The analysis focuses on the following pollutants of concern: carbon monoxide (CO), particulate matter (PM), ozone precursors (nitrogen dioxide and volatile organic compounds), and toxic air pollutants (TAPs). TAPs and fine particulate matter ($PM_{2.5}$) are analyzed to the degree feasible to identify potential public health impacts from locating new sensitive receptors within trans-portation corridors.

This chapter also analyzes how the alternatives may contribute to global climate change through greenhouse gas emissions related to transportation and land uses. Transportation systems contribute to climate change primarily through the emissions of certain greenhouse gases (CO_2, CH_4, and N_2O) from nonrenewable energy (primarily gasoline and diesel fuels) used to operate passenger, commercial, and transit vehicles. Land use changes contribute to climate change through construction, operational use of electricity and natural gas, water demand, and waste production.

3.9.1 AFFECTED ENVIRONMENT

AIR QUALITY

Regulatory Agencies and Requirements

Federal, state, and local agencies regulate air quality in the Puget Sound region: the U.S. EPA, the Washington State Department of Ecology (Ecology), and the Puget Sound Clean Air Agency (PSCAA). Each has its own role in regulating air quality. The City of Seattle codifies air quality policies in SMC

25.05.675.A that provide limited regulatory authority over actions that could degrade air quality.

U.S. Environmental Protection Agency

The 1970 Clean Air Act (last amended in 1990) requires that regional planning and air pollution control agencies prepare a regional air quality plan to outline how stationary and mobile sources of pollutants will be controlled to achieve all standards by the deadlines specified in the Act. Intended to protect the public health and welfare, these ambient air quality standards are specify the concentration of pollutants (with an adequate margin of safety) to which the public can be exposed without adverse health effects. The standards are designed to protect the people most susceptible to respiratory distress, including asthmatics, the very young, the elderly, people weak from other illness or disease, and people engaged in strenuous work or exercise.

As required by the 1970 Clean Air Act, EPA initially identified six criteria air pollutants found in urban environments for which state and federal health-based ambient air quality standards have been established. EPA calls these criteria air pollutants because it has regulated them by developing specific public health- and welfare-based criteria as the basis for setting permissible levels. EPA originally identified ozone, CO, PM, nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead as the six criteria air pollutants. Since then, EPA has identified and set permissible levels for subsets of PM. These include PM_{10} (matter less than or equal to 10 microns in diameter) and $PM_{2.5}$ (matter less than or equal to 2.5 microns in diameter).

The Clean Air Act established National Ambient Air Quality Standards (NAAQS), with primary and secondary standards, to protect the public health and welfare from air pollution. Areas of the U.S. that do not meet the NAAQS for any pollutant are designated by EPA as nonattainment areas. Areas once designated nonattainment but now achieving the NAAQS are termed maintenance areas. Areas with air pollution levels below the NAAQS are termed attainment areas. In nonattainment areas, states must develop plans to reduce emissions and bring the area back into attainment of the NAAQS.

Exhibit 3.9–1 displays the primary and secondary NAAQS for the six criteria pollutants. Ecology and PSCAA have authority to adopt more stringent standards, though many state and local standards are equivalent to the federal mandate.

Exhibit 3.9–1   Federal and State Ambient Air Quality Standards

<div align="center">FEDERAL NAAQS[1]</div>

Pollutant	Averaging Time	Primary Standard	Secondary Standard	Washington State Standard
Ozone	1 hour	NAS[2]	NAS	0.12 ppm
	8 hour	0.070 ppm	0.070 ppm	NAS
Carbon Monoxide (CO)	1 hour	35 ppm	NAS	35 ppm
	8 hour	9 ppm	NAS	9 ppm
Nitrogen Dioxide (NO$_2$)	1 hour	0.100 ppm	NAS	0.100 ppm
	Annual	0.053 ppm	0.053 ppm	0.05 ppm
Sulfur Dioxide (SO$_2$)	1 hour	0.075 ppm	0.5 ppm (3-hour)	0.40 ppm
	24 hour	0.14 ppm	NAS	0.10 ppm
	Annual	0.03 ppm	NAS	0.02 ppm
Particulate Matter (PM$_{10}$)	24 hour	150 µg/m^3	150 µg/m^3	150 µg/m^3
	Annual	NAS	NAS	50 µg/m^3
Fine Particulate Matter (PM$_{2.5}$)	24 hour	35 µg/m^3	35 µg/m^3	NAS
	Annual	12 µg/m^3	15 µg/m^3	NAS
Lead	Rolling 3-month average	0.15 µg/m^3	0.15 µg/m^3	NAS

NAAQS = National Ambient Air Quality Standards

NAS = no applicable standard

ppm = parts per million

µg/m^3 = micrograms per cubic meter

[1] *NAAQS, other than ozone and particulates, and those based on annual averages or annual arithmetic means, are not to be exceeded more than once a year. The eight-hour ozone standard is attained when the three-year average of the fourth highest daily concentration is 0.08 ppm or less. The 24-hour PM$_{10}$ standard is attained when the three-year average of the 99th percentile of monitored concentrations is less than the standard. The 24 hour PM$_{2.5}$ standard is attained when the three-year average of the 98th percentile is less than the standard.*

[2] *EPA revoked the national one-hour ozone standard on June 15, 2005. The 8-hour ozone standard was approved in April 2005 and became effective in May 2006.*

Source: ESA, 2017.

An area remains a nonattainment area for that particular pollutant until concentrations comply with the NAAQS. Only after measured concentrations have fallen below the NAAQS can the state apply for redesignation to attainment, and it must then submit a 10-year plan for continuing to meet and maintain air quality standards that follow the Clean Air Act. During this 10-year period, the area is designated a maintenance area. The Puget Sound region is currently classified as a maintenance area for CO. With regard to ozone, however, EPA revoked its one-hour ozone standard, and the area currently meets the one-hour standard; therefore, the maintenance designation for ozone no longer applies in the Puget Sound region. EPA designated the Seattle Duwamish area as a maintenance area for PM$_{10}$ in 2000 and in 2002.

Washington State Department of Ecology

Ecology maintains an air quality program to safeguard public health and the environment by preventing and reducing air pollution. Washington's main sources of air pollution are motor vehicles, outdoor burning, and wood smoke. Ecology strives to improve air quality throughout the state by overseeing the development of and conformity with the State Implementation Plan (SIP), the state's plan for meeting and maintaining the NAAQS. Ecology has maintained its own air quality standard for one-hour ozone concentrations and established its own more stringent air quality standards for one-hour ozone, one-hour and 24-hour SO_2, and annual NO_2, SO_2 and PM_{10} concentrations, as shown in Exhibit 3.9–1.

Puget Sound Clean Air Agency

The PSCAA has local authority for setting regulations and permitting of stationary air pollutant sources and construction emissions. PSCAA also maintains and operates a network of ambient air quality monitoring stations throughout its jurisdiction.

Existing Climate and Air Quality

The City of Seattle is in the Puget Sound lowland. Buffered by the Olympic and Cascade mountain ranges and Puget Sound, the Puget Sound lowland has a relatively mild, marine climate with cool summers and mild, wet, and cloudy winters.

The prevailing wind direction in the summer is from the north or northwest. The average wind velocity is less than 10 miles per hour. Persistent high-pressure cells often dominate summer weather and create stagnant air conditions. This weather pattern sometimes contributes to the formation of photochemical smog. During the wet winter season, the prevailing wind direction is south or southwest.

There is sufficient wind most of the year to disperse air pollutants released into the atmosphere. Air pollution is usually most noticeable in the late fall and winter, under conditions of clear skies, light wind, and a sharp temperature inversion. Temperature inversions occur when cold air is trapped under warm air, thereby preventing vertical mixing in the atmosphere. These can last several days. If poor dispersion persists for more than 24 hours, the PSCAA can declare an "air pollution episode" or local "impaired air quality."

Pollutants of Concern and Trends

Pollutants generated by both natural and manmade sources affect air quality. In general, the largest manmade contributors to air emissions are transportation vehicles and power-generating equipment, both of which typically burn fossil fuels. The main criteria pollutants of interest for land use development are CO, PM, ozone, and ozone precursors (volatile organic compounds (VOCs) and oxides of nitrogen (NO_x)). Both federal and state standards regulate these pollutants, along with two other criteria pollutants, SO_2 and lead. The Puget Sound region is in attainment for ozone, NO_2, lead, and SO_2.

The major sources of lead emissions have historically been mobile and industrial sources. Due to the phase-out of leaded gasoline, metal processing is currently the primary source of lead emissions, and no lead emissions are associated with development under the alternatives in this EIS. SO_2 is produced by the combustion of sulfur-containing fuels, such as oil, coal, and diesel. Historically, Washington has measured very low levels of SO_2. Because the levels were so low, most monitoring was stopped. SO_2 emissions have dropped over the past 20 years because control measures were added for some sources, some larger SO_2 sources shut down, and the sulfur content of gasoline and diesel fuel was reduced nearly 90 percent. SO_2 emissions would not be appreciably generated by development under any alternative and, given the attainment status of the region, are not further considered in this analysis.

The largest contributors of pollution related to land development activity are construction equipment, motor vehicles, and off-road construction equipment. The main pollutants emitted from these sources are CO, PM, ozone precursors (VOC and NO_x), GHGs and TAPs. Motor vehicles and diesel-powered construction equipment also emit pollutants that contribute to the formation of ground-level ozone. This section discusses the main pollutants of concern and their impact on public health and the environment.

Carbon Monoxide

CO is an odorless, colorless gas usually formed as the result of the incomplete combustion of fuels. The largest sources of CO are motor vehicle engines and traffic, and industrial activity and woodstoves. Exposure to high concentrations of CO reduces the oxygen-carrying capacity of the blood and can cause headaches, nausea, dizziness, and fatigue; impair central nervous system function; and induce angina (chest

pain) in persons with serious heart disease. Very high levels of CO can be fatal. Puget Sound region is designated as a maintenance area for CO (Ecology 2017).

Particulate Matter

PM is a class of air pollutants that consists of heterogeneous solid and liquid airborne particles from manmade and natural sources. PM is measured in two size ranges: PM_{10} and $PM_{2.5}$. Fine particles are emitted directly from a variety of sources, including wood burning (both outside and indoor wood stoves and fireplaces), vehicles, and industry. They also form when gases from some of these same sources react in the atmosphere.

Exposure to particle pollution is linked to various significant health problems, such as increased hospital admissions and emergency department visits for cardiovascular and respiratory problems, non-fatal heart attacks, and premature death. People most at risk from fine and coarse particle pollution exposure include people with heart or lung disease (including asthma), older adults, and children. Pregnant women, newborns, and people with certain health conditions, such as obesity or diabetes, may also be more susceptible to PM-related effects.

The federal annual $PM_{2.5}$ standard has not been exceeded in the Puget Sound area since EPA established its NAAQS in 2007. The federal daily $PM_{2.5}$ standard has not been exceeded in the Puget Sound area since the initiation of monitoring for this pollutant in 2001 (PSCAA 2015). In 2012, EPA strengthened the annual standard from 15 micrograms per cubic meter to 12 micrograms per cubic meter. The Puget Sound area is in attainment with the revised $PM_{2.5}$ standard. Notwithstanding the continued attainment of federal PM_{10} standards, portions of the Puget Sound region continue to be designated as maintenance areas for PM_{10}.

Ozone

Ozone is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving VOCs (which regulating agencies sometimes call reactive organic gases or ROGs) and NO_x. The main sources of VOC and NO_x, often called ozone precursors, are combustion processes (including motor vehicle engines) and the evaporation of solvents, paints, and fuels. Ozone levels are usually highest in the afternoon because of the intense sunlight and the time required for ozone to form in the atmosphere. Ecology currently monitors ozone from May through September, the period of concern for elevated

ozone levels in the Pacific Northwest. No violations of the NAAQS for ozone have occurred at the Seattle monitoring station since monitoring commenced there in 1999.

Elevated concentrations of ground-level ozone can impair lung function, cause respiratory irritation, and aggravate asthma. Ozone has also been linked to immune system impairment. People with respiratory conditions should limit outdoor exertion during elevated ozone levels. Even healthy individuals may experience respiratory symptoms on a high-ozone day. Ground-level ozone can also damage forests and agricultural crops, interfering with their ability to grow and produce food. The Puget Sound region is designated as an attainment area for the federal ozone standard.

Toxic Air Pollutants

Other pollutants known to cause cancer or other serious health effects are called air toxics. Ecology began monitoring air toxics at the Seattle Beacon Hill site in 2000. The Clean Air Act identifies 188 air toxics; EPA later identified 21 of these air toxics as mobile source air toxics (MSATs) and then extracted a subset of nine priority MSATs: benzene, ethylbenzene, formaldehyde, acetaldehyde, diesel particulate matter/ diesel exhaust organic gases, acrolein, naphthalene, polycyclic organic matter, and 1,3-butadiene. Exposure to these pollutants for long durations and sufficient concentrations increases the chances of cancer; damage to the immune system; and neurological, reproductive, developmental, respiratory, and other serious health problems.

Diesel particulate matter poses the greatest potential cancer risk (70 percent of the total risk from air toxics) in the Puget Sound area (PSCAA 2011). This pollution comes from diesel-fueled trucks, cars, buses, construction equipment, and rail, marine, and port activities. Particulate matter from wood smoke (a result of burning in woodstoves and fireplaces or outdoor fires) presents the second-highest potential cancer health risk. Wood smoke and auto exhaust also contain formaldehyde, chromium, benzene, 1,3-butadiene, and acrolein. Chromium is also emitted from industrial plating processes. EPA prioritizes reductions of these air toxics.

Air Quality Information Sources, Monitoring, and Trends

The PSCAA monitors criteria air pollutant concentrations at three locations within Seattle city limits. The primary monitoring station in Seattle is in Beacon Hill. This station collects data for ozone, CO, NO_2, $PM_{2.5}$, and SO_2. The other locations are 10th Ave S and S Weller St and

Duwamish. The 10th and Weller station monitors concentrations of CO, NO_2, and $PM_{2.5}$. The Duwamish station monitors concentrations of $PM_{2.5}$.

Exhibit 3.9–2 displays the most recent three years of available monitoring data at these locations and shows that the air pollutant concentration trends for these pollutants remain below the NAAQS.

Emission projections and ongoing monitoring throughout the central Puget Sound region indicate that the ambient air pollution concentrations for CO and $PM_{2.5}$ have decreased over the past decade. Measured ozone concentrations, in contrast, have remained relatively static. The decline of CO is primarily due to improvements to emission controls on motor vehicles and the retirement of older, higher-polluting vehicles. However, the Puget Sound Regional Council estimates that by 2040 the Puget Sound region population will grow by one million people, a 27 percent increase from 2013, to reach a population of 4.9 million people (PSRC 2015). The highest population increase is estimated to be in King County. These estimates indicate that CO, $PM_{2.5}$, and ozone emissions will increase, which could lead to future NAAQS violations.

Air toxic pollutant emissions are also of concern because of the projected growth in vehicle miles traveled. EPA has been able to reduce benzene, toluene, and other air toxics emissions from mobile sources through stringent standards on tailpipe emissions and by requiring the use of reformulated gasoline. The FHWA estimates that even if VMT increases by 45 percent from 2010 to 2050, a combined reduction of 91 percent in the total annual emissions for the priority MSAT is projected for the same time period (FHWA 2016).

Exhibit 3.9–2 Ambient Air Quality Monitoring Data for Monitoring Stations in Seattle

Pollutant	Station	Averaging Time	MAXIMUM CONCENTRATIONS			NAAQS Standard
			2014	2015	2016	
Ozone	Beacon Hill	1 hour	0.058 ppm	0.062 ppm	0.060 ppm	0.070 ppm
		8 hour	0.048 ppm	0.050 ppm	0.050 ppm	NAS
Carbon Monoxide (CO)	10th & Weller	1 hour	3.309 ppm	2.216 ppm	1.999 ppm	35 ppm
		8 hour	2.0 ppm	1.8 ppm	1.6 ppm	9 ppm
	Beacon Hill	1 hour	1.078 ppm	1.1 ppm	1.198 ppm	35 ppm
		8 hour	1.0 ppm	0.9 ppm	0.9 ppm	9 ppm
Particulate Matter (PM$_{10}$)	Beacon Hill	24 hour	24 µg/m^3	38 µg/m^3	24 µg/m^3	150 µg/m^3
		Annual	9.76 µg/m^3	10.94 µg/m^3	9.24 µg/m^3	NAS
Fine Particulate Matter (PM$_{2.5}$)	10th & Weller	24 hour	33.6 µg/m^3	26.5 µg/m^3	20.6 µg/m^3	35 µg/m^3
		Annual	9.96 µg/m^3	9.29 µg/m^3	7.71 µg/m^3	12 µg/m^3
	Beacon Hill	24 hour	27.1 µg/m^3	33.1 µg/m^3	16.2 µg/m^3	35 µg/m^3
		Annual	5.88 µg/m^3	6.55 µg/m^3	5.46 µg/m^3	12 µg/m^3
	Duwamish	24 hour	44.0 µg/m^3	31.7 µg/m^3	30.2 µg/m^3	35 µg/m^3
		Annual	8.14 µg/m^3	9.77 µg/m^3	6.53 µg/m^3	12 µg/m^3
Nitrogen Dioxide (NO$_2$)	10th & Weller	1 hour	0.091 ppm	0.106 ppm	0.071 ppm	0.1 ppm
		Annual	0.024 ppm	0.024 ppm	0.036 ppm	0.05 ppm
	Beacon Hill	1 hour	0.060 ppm	0.055 ppm	0.058 ppm	0.1 ppm
		Annual	0.012 ppm	0.011 ppm	0.025 ppm	0.05 ppm
Sulfur Dioxide (SO$_2$)	Beacon Hill	1 hour	0.003 ppm	0.009 ppm	0.008 ppm	0.075 ppm
		24 hour	0.001 ppm	0.003 ppm	0.002 ppm	0.14 ppm
		Annual	0.001 ppm	0.002 ppm	0.001 ppm	0.03 ppm

NAAQS = National Ambient Air Quality Standards

NAS = no applicable standard

ppm = parts per million

µg/m^3 = micrograms per cubic meter

Source: ESA, 2017.

Sources of Air Pollution

Air pollution sources in Seattle and its environs can be categorized into point sources, transportation sources, and area sources.

Transportation sources include freeways, highways, and major arterial roadways, particularly those supporting a high percentage of diesel truck traffic, such as State Routes 99 and 599. A Washington State Department of Health (DOH) health risk assessment found that on-road mobile sources contribute to the highest cancer and non-cancer risks near major roadways over a large area of south Seattle and that risks and hazards are greatest near major highways and drop dramatically about 200 meters (656 feet) from the center of highways (WSDH 2008).

The DOH analysis focuses on the south Seattle/Duwamish Valley area. Georgetown and South Park residents asked DOH to assess pollutant impacts on their health. To date this is the only such assessment for the greater Seattle area. Most land use in the Duwamish Valley is commercial or industrial except for the two residential communities of Georgetown and South Park. The study's findings, particularly related to exposure from highway sources, is likely to be similar for north Seattle.

EPA identifies risk above 100 per one million persons (100 excess cancer risk) as a criterion for conducting air toxic analyses and making risk management decisions at the facility and community-scale level and, consequently, may be interpreted as a relatively high cancer risk value from a single air pollutant source (BAAQMD 2009). Other states have identified recommended separation distances of residential uses from rail yard sources of 1,000 feet. This 1,000-foot distance correlates to increased cancer risks below 500 in one million. Sensitive land uses inside this area are considered inappropriate and could represent a moderate to severe air quality impact (CARB 2005). These mapped areas represent an increased cancer risk. Cancer estimates are expressed in scientific notation, for example 1e-6 or 1 x 10-6, This means one excess cancer per million individuals exposed, or an individual's probability of getting cancer from exposure to air pollutants is one in 1,000,000. These risks should not be interpreted as estimates of disease in the community but only as a tool to define potential risk.

Additional transportation sources include railway lines supporting diesel locomotive operations. BNSF Railway Company (BNSF) owns and operates a mainline dual-track from Portland to Seattle. Union Pacific owns and operates a single mainline track with two-way train operations between Tacoma and Seattle. BNSF owns and operates tracks that

extend north from downtown Seattle to Snohomish County and then east to Spokane. A connecting spur, operated by the Ballard Terminal Rail Company, serves the Ballard and the western ship canal area. Other transportation sources that contribute to regional and localized pollutant concentrations include aircraft (from Boeing Field) and marine sources (ferries, tugs, container ships, etc.).

Point sources (also called stationary sources) are generally industrial equipment and are almost always required to have a permit to operate from PSCAA. Examples include industrial turbines and cement manufacturing plants. Area sources include ports, truck-to train intermodal terminals, and distribution centers.

The Port of Seattle aims to reduce PM emissions from ships by 70 percent while they are in port and from land-based equipment by 30 percent (Port of Seattle et al. 2007). Measures to reduce emissions include providing power plug-ins to ships while they are in port.

Sensitive Populations

People more sensitive to the health effects of air pollutants include the elderly and the young; populations with higher rates of respiratory disease, such as asthma and chronic obstructive pulmonary disease; and people with other environmental or occupational health exposures (e.g., indoor air quality) that affect cardiovascular or respiratory diseases. Therefore, land uses and facilities such as schools, children's daycare centers, hospitals, and nursing and convalescent homes are considered more sensitive than the general public to poor air quality because the people associated with these uses are more susceptible to respiratory distress.

Parks and playgrounds are considered moderately sensitive to poor air quality because people engaged in strenuous work or exercise have increased sensitivity to poor air quality. However, exposure times are generally shorter in parks and playgrounds than in residential locations and schools. Residential areas are considered more sensitive to air quality conditions compared to commercial and industrial areas because people generally spend more time at home and thus have proportionally greater exposure to ambient air quality conditions. Workers are not considered sensitive receptors because all employers must follow regulations set forth by the Occupational Safety and Health Administration (OSHA) to ensure the health and well-being of their employees with regard to their own operations.

GREENHOUSE GASES AND CLIMATE CHANGE

Gases that trap heat in the atmosphere are referred to as greenhouse gases because, like a greenhouse, they capture heat radiated from the earth. The accumulation of GHGs are a driving force in global climate change. Definitions of climate change vary between and across regulatory authorities and the scientific community. In general, however, climate change can be described as the changing of the earth's climate due to natural fluctuations and anthropogenic activities (i.e., activities relating to, or resulting from the influence of, human beings) that alter the composition of the global atmosphere.

Increases in GHG concentrations in the earth's atmosphere are believed to be the main cause of human-induced climate change. GHGs naturally trap heat by impeding the exit of solar radiation that hits the earth and reflects into space. This trapping of heat is called a "greenhouse effect." Some GHGs occur naturally and are necessary for keeping the earth's surface habitable. But increases in their atmospheric concentrations during the last 100 years have decreased the amount of solar radiation reflected back into space, intensifying the natural greenhouse effect and increasing global average temperature.

Pollutants of Concern

The principal GHGs of concern are CO_2, CH_4, N_2O, SF_6, perfluorocarbons (PFCs) and hydrofluorocarbons (HFCs). Electric utilities, including Seattle City Light, use SF_6 in electric distribution equipment. Each principal GHG has a long atmospheric lifetime (one year to several thousand years). In addition, the potential heat-trapping ability of each of these gases varies substantially. CH_4 is 23 times as potent as CO_2 at trapping heat, while SF_6 is 23,900 times more potent than CO_2. Conventionally, GHGs have been reported as CO_2 equivalents (CO_2e). CO_2e reflects the relative potency of non-CO_2 GHGs and converts their quantities to an equivalent amount of CO_2 so that all emissions can be reported as a single quantity.

The primary human-made processes that release GHGs include combustion of fossil fuels for transportation, heating, and electricity generation; agricultural practices that release CH_4, such as livestock production and crop residue decomposition; and industrial processes that release smaller amounts of high global warming potential gases like SF_6, PFCs and HFCs. Deforestation and land cover conversion also

contribute to global warming by reducing the earth's capacity to remove CO_2 from the air and altering the earth's albedo (surface reflectance), thereby allowing more solar radiation to be absorbed.

Regulatory Rules and Plans

Washington State Department of Ecology

In December 2010, Ecology adopted Chapter 173-441 Washington Administrative Code—Reporting of Emissions of Greenhouse Gases. This rule institutes mandatory GHG reporting for:

- Facilities that emit at least 10,000 metric tons of GHGs per year in Washington; and

- Suppliers of liquid motor vehicle fuel, special fuel, or aircraft fuel that supply products equivalent to at least 10,000 metric tons of CO_2 per year in Washington.

In 2016, Ecology established GHG emission standards for certain large emitters. Chapter 173.442 WAC establishes emission standards for GHG emissions from certain stationary sources located in Washington, including natural gas distributors, petroleum product producers (i.e., refineries and importers), power plants, waste facilities, and metal, cement, pulp and paper, and glass manufacturers.

Seattle Climate Action Plan

Seattle was the first city in the nation to adopt a green building goal for all new municipal facilities. In 2001, the City created a Leadership in Energy and Environmental Design (LEED) incentive program for private development projects. Resolution 30144 established Seattle City Light's long-term goal of meeting all of Seattle's electrical needs with zero net GHG emissions. Seattle City Light achieved GHG neutrality in 2005 by reducing emissions, inventorying remaining emissions, and purchasing offsets for remaining emissions and has maintained GHG neutrality since (SCL 2012).

In 2011, the City Council adopted Resolution 31312 establishing a long-term climate protection vision for Seattle that included achieving net zero GHG Emissions by 2050 and preparing for the likely impacts of climate change. The City prepared a Climate Action Plan (2013 CAP) that details the strategy for achieving these goals. The strategy focuses on City actions that reduce GHG emissions while also supporting other

community goals, including building vibrant neighborhoods, fostering economic prosperity, and enhancing social equity. The 2013 CAP focuses on sources of emissions where City action and local community action will have the greatest impact: road transportation, building energy, and waste, which together account for most local emissions. The 2013 CAP identifies the Comprehensive Plan as one of many plans that will implement the Climate Action Plan. With 2008 as the baseline year, the 2013 CAP identifies the following targets by 2030:

- 20 percent reduction in vehicle miles traveled

- 75 percent reduction in GHG emissions per mile for Seattle vehicles

- 10 percent reduction in commercial building energy use

- 20 percent reduction in residential building energy use

- 25 percent reduction in combined commercial and residential building energy use

The 2013 CAP also calls for identifying equitable development policies to support growth and development near existing and planned high-capacity transit without displacement.

Existing Greenhouse Gas Emissions and Trends

In August 2016, the City published its 2014 Seattle Community Greenhouse Gas Emissions Inventory. Primary sources (core emissions) of GHG emissions include on-road transportation, building energy, and waste generation. Transportation sources comprise about 66 percent of inventoried emissions, building energy (electricity generation and natural gas and other fuel combustion) 32 percent, and waste sources three percent. From 2008 to 2014, core emissions of GHGs declined five percent from 3.6 million to 3.4 million metric tons of CO_2e. This reduction occurred despite an overall increase in population of 13 percent during the same period (City of Seattle 2016).

Ecology estimates that in 2013, Washington produced about 94.4 million gross metric tons of CO_2e (MMTCO_2e, or about 104 million U.S. tons) (Ecology 2016). Ecology found that transportation is the largest source, at 42.8 percent of the state's GHG emissions, followed by electricity generation (both in-state and out-of-state) at 19 percent, and residential, commercial, and industrial energy use at 22 percent. The sources of the remaining 16.2 percent of emissions are agriculture, waste management, and industrial processes.

Transportation Related Greenhouse Gas Emissions

The analysis completed for this EIS builds on the findings in the 2014 Seattle Community Greenhouse Gas Emissions Inventory. This analysis calculates transportation GHG emissions at the citywide level. The Seattle inventory estimates 2,283,000 metric tons of CO_2e (MTCO$_2$e) in 2014.

Based on a review of traffic and fuel economy trends, the 2014 GHG emissions estimate is assumed to adequately represent current conditions and may be conservatively high. Appendix L has additional details.

3.9.2 IMPACTS

IMPACTS COMMON TO ALL ALTERNATIVES

Air Quality

Construction-Related Emissions

Future growth under any alternative would result in development. Most development projects in the city would entail demolition and removal of existing structures or parking lots, excavation and site preparation, and construction of new buildings. Emissions generated during construction activities would include exhaust emissions from heavy duty construction equipment, trucks used to haul construction materials to and from sites, worker vehicle emissions, and fugitive dust emissions associated with earth-disturbing activities and other demolition and construction work.

Fugitive dust emissions are typically generated during construction phases. Activities that generate dust include building and parking lot demolition, excavation, and equipment movement across unpaved construction sites. The PSCAA requires dust control measures (emissions control) for construction projects through Article 9, Section 9.15. Measures applicable to fugitive dust include (1) using control equipment, enclosures, or wet suppression techniques, (2) paving or otherwise covering unpaved surfaces as soon as possible, (3) treating construction sites with water or chemical stabilizers, reducing vehicle speeds and cleaning vehicle undercarriages before entering public roadways, and (4) covering or wetting truck loads or providing freeboard in truck loads. Given these requirements, impacts related to construction dust are concluded to be less than significant.

During construction activities, diesel-powered demolition and construction equipment would emit criteria air pollutants. Other emissions during construction would result from trucks used to haul construction materials to and from sites and from vehicle emissions generated during worker travel to and from construction sites. Exhaust emissions from diesel off-road equipment represent a relatively small percentage of the overall emission inventory in King County: 0.6 percent of countywide CO, 8.8 percent of countywide NO_x, 6.7 percent of countywide $PM_{2.5}$ and 0.9 percent of countywide VOC (PSCAA 2008). Consequently, the primary emissions of concern (greater than one percent contribution) from construction equipment are NO_x and $PM_{2.5}$ (the latter a priority air toxic). NO_x is primarily an air quality concern with respect to its role in (regional) ozone formation, and the Puget Sound air shed has long been designated as an attainment area (meeting standards) with respect to ozone. Construction-related NO_x emissions are not expected to generate significant adverse air quality impacts nor lead to violation of standards under any of the alternatives. The same conclusion is reached for diesel-related emissions of $PM_{2.5}$, which could generate temporary localized adverse impacts within a few hundred feet of construction sites.

Federal regulations require cleaner off-road equipment. Specifically, EPA has set emissions standards for new off-road equipment engines, classified as Tier 1 through Tier 4. Tier 1 emission standards were phased in between 1996 and 2000, and Tier 4 interim and final emission standards for all new engines were phased in between 2008 and 2015. To meet Tier 4 emission standards, engine manufacturers must provide new engines with advanced emission-control technologies. Although the full benefit of these regulations will not be realized for several years, EPA estimates that by implementing the federal Tier 4 standards, NO_x and PM emissions will be reduced by more than 90 percent (U.S. EPA 2004). Consequently, it is anticipated that, as the region-wide construction fleet converts to newer equipment, the potential for health risks from off-road diesel equipment will be substantially reduced. Given the transient nature of construction-related emissions and regulatory improvements scheduled to be phased in, construction related emissions associated with all three alternatives would be considered only a minor adverse air quality impact.

Land Use Compatibility and Public Health Considerations

Future growth could result in more people living near to mobile and stationary sources of air toxics and particulate matter $PM_{2.5}$. The impact of the action alternatives is that they would increase the potential number of people, or other "sensitive receptors" like hospitals, schools, daycare facilities, or senior house, located near existing sources of harmful air pollutants.

As discussed under Sources of Air Pollution (above), portions of Seattle located along major roadways (freeways and the most-traveled highways) are exposed to relatively high cancer risk values. Modeling indicates increased cancer risks in existing residential areas of up to 800 in one million. These risks are not estimates of disease in the community but a tool to define potential risk. A risk above 100 per one million persons (100 excess cancer risk) is a criterion identified by EPA guidance for conducting air toxic analyses and making risk management decisions at the facility and community-scale level. Residential parcels are located near such highway traffic corridors in south Seattle (although often above Interstate 5 on Beacon Hill and in some areas buffered by greenbelts), and thus at least some parcels are located in areas of higher exposure and risk. Risks and hazards drop dramatically in areas more than 200 meters (656 feet) from the center of highways. A similar phenomenon occurs in proximity to rail lines that support diesel locomotive operations. Accordingly, it would be prudent to consider risk-reducing mitigation strategies such as set-backs for residential and other sensitive land uses from major traffic corridors and rail lines and/or to identify measures for sensitive land uses proposed in areas near such sources.

Portions of Seattle are also exposed to relatively high cancer risk values from stationary sources. Risks could be similarly high near port operations where ship emissions and diesel locomotive emissions and diesel forklift emissions can all occur. Similarly, distribution centers that involve relatively high volume of diesel truck traffic can also represent a risk hazard to nearby sensitive land uses. This would also warrant consideration of setbacks from industrial sources for residential and other sensitive land uses and/or measures to reduce the potential risk for receptors proposed in areas near such sources. This is considered a moderately adverse impact to air quality.

Fourteen urban villages are within 200 meters of a major highway, rail line, or port terminal. In both action alternatives, these urban villages account for about 50 percent of all projected residential growth in the

city through 2035, though only a portion of each urban village is within the 200-meter buffer and therefore the portion of new residents who could affected would be smaller. The action alternatives also include development capacity increases within this 200-meter buffer and outside urban villages. Under any alternative, increased residential densities could be expected within this buffer.

The following urban villages are within the 200 meter buffers:

- First Hill–Capitol Hill
- University District (the Ravenna Urban Center Village and a small portion of the University District Northwest Urban Center Village)
- Northgate
- Bitter Lake
- Fremont
- Lake City
- 23rd & Union–Jackson
- Aurora–Licton Springs
- Eastlake
- Green Lake
- North Beacon Hill
- Roosevelt
- South Park
- Wallingford

This potential increased exposure to cancer risk is considered a potential moderate adverse impact related to air quality.

Accordingly, it would be prudent to consider risk-reducing mitigation strategies such as setbacks for residential and other sensitive land uses from major traffic corridors, rail lines, port terminals, and point sources of particulates from diesel fuel.

Greenhouse Gases and Climate Change

The scale of global climate change is so large that the impacts of one action can be considered only on a cumulative scale. It is not anticipated that a single development project or programmatic action, even at the citywide scale of MHA, would have an individually discernible impact on global climate change. It is more appropriate to conclude that GHG

emissions from future development in Seattle would combine with emissions across the state, country, and planet to cumulatively contribute to global climate change.

Construction-Related Greenhouse Gas Emissions

During construction activities, diesel-powered demolition and construction equipment would emit GHGs. Other emissions during construction would result from trucks used to haul construction materials to and from sites and from vehicle emissions generated during worker travel to and from construction sites. Industrial equipment operations, which include the operation of construction equipment, represent approximately 3.2 percent of the emissions estimated in the 2014 GHG emissions inventory (City of Seattle 2016).

Construction-related GHG emissions from any given development project that may occur in the next 20 years would be temporary and would not represent an ongoing burden to the City's inventory. However, varying levels of construction activities in Seattle would occur cumulatively under any alternative, and thus cumulative construction-related emissions would be more than a negligible contributor to GHG emissions in the city. An estimate of the GHG emissions resulting from 20 years of construction envisioned under the alternatives was calculated using the City's SEPA GHG Emissions Worksheet. Estimated total construction-related emissions are 13.8 million metric tons of CO_2e under Alternative 1, 15.8 million metric tons under Alternative 2, and 15.6 million metric tons under Alternative 3. The estimated total construction-related emissions also include "embodied "or "life-cycle" emissions related to construction, such as those generated by the extraction, processing, and transportation of construction materials.

The Climate Action Plan recognizes the relevance of construction-related GHG emissions and includes actions to be implemented by 2030 to address them:

- Support new and expanded programs to reduce construction and demolition waste, such as creating grading standards for salvaged structural lumber so that it can be more readily reused;

- Expand source reduction efforts to City construction projects, and incorporate end-of-life management considerations into City procurement guidelines; and

- Phase-in bans on the following construction and demolition waste from job sites and private transfer stations: recyclable metal, cardboard, plastic film, carpet, clean gypsum, clean wood and asphalt shingles.

Consequently, although construction-related emissions would not be negligible, the combination of regulatory improvements and actions already underway means that construction-related GHG emissions associated with all three alternatives would be considered a minor adverse air quality impact.

Transportation-related Greenhouse Gas Emissions

The approach to estimating future year transportation-related GHG emissions considers two factors:

• The projected change in vehicle miles traveled (VMT)

• The projected change in fuel economy of the vehicle fleet

VMT in 2035. Travel demand models include findings about projected vehicle miles traveled in future years for various classes of vehicles (e.g., cars, trucks, buses). The model generally assumes a continuation of current economic and demographic trends, with minor shifts toward shorter trips and more trips made by modes other than automobile travel. This will reduce VMT per capita, but total VMT in the region would continue to rise modestly due to population and employment growth.

If projected based solely on the increase in VMT, with no changes assumed to fuel economy, emissions under each alternative would increase about 15 percent compared to 2015. But the trend toward more stringent federal standards makes it reasonable to assume improved fuel economy by 2035.

Fuel Economy in 2035. Federal programs mandate improved fuel economy and reduced GHG emissions for passenger cars and light trucks in 2017-2025. According to those standards, fuel economy for passenger cars and light trucks would improve from 33.8 miles per gallon (mpg) in 2015 to 54.5 mpg by 2025. This equates to a GHG emissions decrease of roughly 38 percent for new passenger cars and light trucks entering the vehicle fleet (U.S. EPA 2010; 2012). Similarly, EPA and the NHTSA issued fuel efficiency standards for medium and heavy trucks for model years 2014 to 2018 (phase one) and model years 2018-2027 (phase two). When these standards are fully phased in, tractor-trailers will achieve up to 25 percent lower CO_2 emissions and fuel consumption than in 2018 (NHTSA, 2016).

Although these regulations will result in improved fuel economy for new vehicles, older vehicles would still comprise some portion of the 2035 fleet. To account for this, the analysis used the California Air Resource Board's EMFAC 2011 tool, which includes GHG emissions forecasts

adjusted for future vehicle fleet composition. The resulting estimate is that GHG emissions of the 2035 vehicle fleet would be 30 percent lower than the 2015 vehicle fleet for passenger cars and light trucks. For heavy trucks, 2035 GHG emissions are projected to be four percent lower than 2015 emissions. Note that these reflect conservative assumptions of no additional gains in new vehicle fuel economy beyond 2025.

Fuel economy for buses was also considered. King County Metro (KCM) and Sound Transit (ST) set goals for GHG emission reductions in their respective sustainability plans. KCM's goal equates to a roughly 41 percent reduction in emissions between 2015 and 2030 (KCM 2014). ST's goal equates to a roughly 30 percent reduction in emissions between 2015 and 2030 (Sound Transit 2014). For this analysis, bus emissions were assumed to be reduced by 35 percent between 2015 and 2030. This is a conservatively low assumption given that most of the fleet is operated by KCM, which has a higher reduction goal, and the EIS horizon year is 2035, five years beyond the goal date set by each transit agency.

Results. All alternatives generate roughly the same annual GHG emissions, as shown in Exhibit 3.9–3. Alternatives 2 and 3 would have the highest transportation-related GHG emissions. Alternative 1 No Action would have the lowest GHG emissions. But the variation is within 1.3 percent. All alternatives would generate lower GHG emissions than in 2015 because the projected improvements in fuel economy outweigh the projected increase in VMT.

Exhibit 3.9–3 Road Transportation GHG Emissions in Metric Tons of CO_2e per Year

Vehicle Type	2015 Existing	2035 Alternative 1 No Action	2035 Alternative 2	2035 Alternative 3
Cars and Light Trucks	1,653,000	1,426,000	1,447,000	1,447,000
Heavy Trucks	563,000	694,000	701,000	701,000
Buses	65,000	43,000	43,000	43,000
Vanpools	2,000	2,000	2,000	2,000
Total	2,283,000	2,165,000	2,193,000	2,193,000

Source: ESA, 2017; Appendix L.

GHG emissions can also be considered from a regional perspective. While the variation among the alternatives' projected emissions in Seattle is minor, the same amount of growth in other jurisdictions in the area would result in very different results. To that end, VMT for auto trips with at least one endpoint outside Seattle was compared to VMT for trips with at least one endpoint in Seattle. VMT per population/ job is nearly 55 percent higher outside of Seattle (but within the four-county—Snohomish, King, Kitsap, Pierce—region) than inside Seattle. This suggests that the same amount of development outside Seattle would result in substantially higher emissions since 2035 fuel economy would remain equivalent across jurisdictions. Exhibit 3.9–3 shows road transportation GHG emissions.

IMPACTS OF ALTERNATIVE 1 NO ACTION

Alternative 1 would not implement MHA or increase development capacity. 76,746 new households are expected under Alternative 1, similar to the 20-year minimum growth estimate of 70,000 additional households in the Seattle 2035 Comprehensive Plan. Under Alternative 1, redevelopment, demolition, and new construction projects could occur in the study area.

Air Quality

Transportation and Energy-Related Emissions

Under Alternative 1, VMT in the study area would increase due to population and employment growth. Projected changes in VMT were extracted from the projected travel demand model for automobiles and light-duty trucks and for medium and heavy-duty trucks. The travel demand model generally assumes existing economic and demographic trends continue with minor changes due primarily to mode share shifts and shortened trips due to increased traffic congestion. These changes cause projected VMT per capita to decline slightly by 2035, but total VMT would continue to rise due to population and employment growth. Increases in energy related emissions (e.g., natural gas usage in residential and commercial buildings) would increase emissions of air pollutants of concern.

All alternatives in 2035 are expected to generate lower air pollutant emissions than in 2015, resulting in a net decrease in transportation- and energy-related air pollutant emissions. This is because the projected improvement in fuel economy outweighs the projected increase in

Exhibit 3.9–4   Road Transportation and Energy-Related Pollutant Emissions in Tons per Year

Source	2015 Existing	2035 Alternative 1 No Action	2035 Alternative 2	2035 Alternative 3
Carbon monoxide (CO)	130.63	36.66	38.68	38.78
Oxides of nitrogen (NO$_x$)	134.76	18.07	22.55	22.69
Fine Particulate Matter (PM$_{2.5}$)	9.30	2.90	3.18	3.19
VOC	9.73	1.53	1.80	1.80

Source: ESA, 2017.

VMT. Exhibit 3.9–4 shows transportation and energy-related pollutant emissions of VOC, NO$_x$, CO, and PM$_{2.5}$ in tons per year.

Greenhouse Gases and Climate Change

Under the Alternative 1, changes in operational GHG emissions would result from increases in VMT, fuel efficiency improvements to the vehicle fleet, increased electrical and natural gas use, and solid waste generation. GHG emissions from electrical use are generated when energy consumed is generated by the non-renewable resources of an electrical supplier, such as Seattle City Light. However, Seattle City Light is carbon neutral and consistent with the Climate Action Plan. Therefore, no GHG emissions related to electricity are assumed because Seattle City Light will maintain its commitment to carbon neutrality. GHG emissions from natural gas are direct emissions resulting from on-site combustion for heating and other purposes. Solid waste-related emissions are generated when the increased waste generated by development is disposed in a landfill where it decomposes, producing methane gas.

Energy Generated GHG

GHG emissions from energy demand are calculated using default data from the CalEEMod land use model (version 2016.3.1). These emissions are then adjusted to account for increased efficiency implemented through performance requirements fostered by the Climate Action Plan.

Solid Waste-Generated GHG

Increased emissions from solid waste generation were estimated using the most recent (2015) waste generation rate (Seattle Public Utilities, 2016). These emissions were then adjusted to account for

waste diversion implemented through waste reduction, recycling, and composting fostered by the City's carbon-neutral goal target of 70 percent waste diversion by 2030.

Total Emissions

Exhibit 3.9–5 and Appendix L show operational GHG emissions from Alternative 1. No significant adverse impacts are identified with respect to these GHG emissions. The emissions reductions from Alternative 1 would be the greatest of any of the three alternatives, largely due to larger VMT reductions than the other alternatives, a reflection of fewer new households and jobs.

Exhibit 3.9–5   Operational GHG Emissions of Alternative 1 No Action and Alternatives 2 and 3 in Metric Tons of CO_2e per Year

Source	2035 Alternative 1 No Action	2035 Alternative 2	2035 Alternative 3
Transportation (Citywide)	-118,000	-90,000	-90,000
Building Energy–Residential	9,565	12,775	12,915
Building Energy– Commercial	2,252	2,522	2,495
Solid Waste	20,263	25,165	25,076
Total	*-85,921*	*-49,538*	*-49,515*

Source: ESA, 2017.

IMPACTS OF ALTERNATIVE 2

Alternative 2 would make zoning changes, modify the Land Use Code, and implement MHA, resulting in 63,070 new households in the study area, 39 percent more than Alternative 1.

Air Quality

Transportation and Energy-Related Emissions

Transportation and energy-related air pollutant emissions under existing conditions and each alternative are presented in Exhibit 3.9–4 and Appendix L.

As shown in Exhibit 3.9–4, regional pollutant emissions for each pollutant under Alternative 2 would be more than Alternative 1. This reflects the

projected increase in VMT in Alternative 2 compared to Alternative 1. This percent difference is minimal. However, as indicated in Exhibit 3.9–4, all alternatives would result in air quality improve-ments compared to baseline due to increased fuel efficiency and a cleaner vehicle fleet.

Greenhouse Gases and Climate Change

GHG emissions under development of Alternative 2 were calculated using the same methodologies as Alternative 1 but reflect the differences among the alternatives. Operational GHG emissions from Alternative 2 are presented in Exhibit 3.9–5 and Appendix L. No significant adverse impacts are identified with respect to these GHG emissions. The emissions reductions from Alternative 2 would be the second greatest of any of the three alternatives, largely as the result of greater VMT which reflects the greater number of residential development and jobs.

IMPACTS OF ALTERNATIVE 3

Alternative 3 would make zoning changes, modify the Land Use Code, and implement MHA, resulting in 62,858 new households in the study area, 38.6 percent more than Alternative 1.

Air Quality

Transportation and Energy-Related Emissions

Transportation and energy-related air pollutant emissions under existing conditions and each of the three alternatives are presented in Exhibit 3.9–4 and Appendix L.

As shown in Exhibit 3.9–4, regional pollutant emissions under Alternative 3 would be more than Alternatives 1 and 2. This is because of the projected increase in VMT in Alternative 3 compared to Alternatives 1 and 2. This percent difference is minimal. However, as indicated in Exhibit 3.9–4, all alternatives would result in air quality improve-ments compared to baseline due to increased fuel efficiency and a cleaner vehicle fleet.

Land Use Compatibility and Public Health Considerations

Of the 14 urban villages within 200 meters of a major highway, rail line, or port terminal, the ones with the highest proportion of the urban village affected represent 47 percent of all projected residential growth in the

city through 2035, compared to 49 percent for Alternative 2 and 48 percent for Alternative 1. Only a portion of each urban village is within the 200-meter buffer, so the potentially affected portion of the new residents would be smaller.

Greenhouse Gases and Climate Change

GHG emissions under development of Alternative 3 were calculated using the same methodologies as those used for Alternatives 1 and 2 but reflect the differences among the alternatives. Operational GHG emissions from Alternative 3 are presented in Exhibit 3.9–5 and Appendix L. No significant adverse impacts are identified with respect to these GHG emissions. The emissions reductions realized from implementation of Alternative 3 would be less than those of Alternatives 1 and 2.

3.9.3 MITIGATION MEASURES

Mitigation recommendations proposed in Section 3.2.3 of the Seattle 2035 Comprehensive Plan EIS would also apply to the potential impacts identified for this project, including potential setbacks to separate residences and other "sensitive receptors" (i.e. hospitals, schools, daycare facilities, senior housing) from freeways, railways, and port facilities. Where separation by a buffer is not feasible, consider filtration systems for such uses. No other mitigation would be required.

3.9.4 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

No significant unavoidable impacts to air quality and greenhouse gas emissions are anticipated under any of the proposed alternatives.

4

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DISTRIBUTION LIST.

The Draft EIS has been issued with a notice of availability and methods of publication required in SMC 25.05.510 Public Notice.

Tribal and Federal Agencies

Duwamish Tribe

Muckleshoot Indian Tribe

Suquamish Tribe

Tulalip Tribes of Washington

United Indians of all Tribes Foundation

National Oceanic & Atmospheric Administration Fisheries, National Marine Fisheries Service

U.S. Army Corp of Engineers

U.S. Dept. of Agriculture, Wildlife Services Division

U.S. Dept. of Ecology, Northwest Regional Office

U.S. Dept. of Fish & Wildlife Services

U.S. Dept. of Fish & Wildlife Services, EIS Reviews

U.S. Dept. of Housing & Urban Development

U.S. Environmental Protection Agency

Regional and County Agencies

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King County Dept. of Public Health

King County Dept. of Transportation

King County Executive's Office

King County Housing & Community Development

King County Land Use Services Division

King County Metro Transit

King County Regional Water Quality Committee

King County Wastewater Treatment Division

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City of Seattle Dept. of Neighborhoods

City of Seattle Dept. of Neighborhoods,
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Seattle Public Library, Public Review Documents

Seattle Public Utilities

City of Shoreline