500 Fifth Avenue North

Draft
Environmental Impact Statement

Date of Issue: April 27, 2006

City of Seattle
Department of Planning and Development

The intent and purpose of this Draft Environmental Impact Statement is to satisfy the procedural requirements of the State Environmental Policy Act (RCW 43.21c) and City Ordinance 114057. This document is not an authorization for an action, nor does it constitute a decision or a recommendation for an action; in its final form it will accompany the final decision on the proposal.

Draft Environmental Impact Statement

for

500 Fifth Avenue North

Master Use Permit Application No. 3003599

City of Seattle
Department of Planning and Development

Prepared in Compliance with the
State Environmental Policy Act of 1971
Chapter 43.21 C, Revised Code of Washington

SEPA Rules, Effective April 4, 1984
Chapter 191-11, Washington Administrative Code

City of Seattle SEPA Ordinance 114057 Seattle Municipal Code Chapter 25.05

Date of Issue: April 27, 2006

Date Comments Are Due: May 30, 2006

Preface

This Draft Environmental Impact Statement (DEIS) for the proposed 500 Fifth Avenue North project has been prepared under the direction of the City of Seattle Department of Planning and Development (DPD). This scope of this document has been determined in accordance with the scoping process required by the Seattle SEPA Ordinance (SMC 25.05.408). The required scope addresses those elements of the environment in which the presence or potential for significant adverse impacts is probable. A public notice was issued on October 20, 2005 stating that the project would require an EIS and inviting public and agency comments on the scope of the DEIS. A public scoping meeting was held on the evening of November 9, 2005 in Room 1 of the Queen Anne Community Center, 1901 First Avenue West, Seattle, Washington. The 30-day comment period ended on November 21, 2005. No comments were received.

The Seattle Department of Planning and Development (DPD) conducted a pre-application meeting with the applicant on October 6, 2005 and coordinated an early design review of the project on November 2, 2005. Based on DPD's early review of the project, and in the absence of any scoping comments, DPD has determined that the project has the potential to result in significant adverse impacts on only one element of the environment: transportation. There will also be potential impacts from construction (air quality, noise and transportation). It is not anticipated that there will be a significant adverse impact on other elements of the environment, and these elements are eliminated from detailed study. Summary information on the project's effects on these elements of the environment is provided beginning on page vi.

The lead agency is requesting review and comment on this DEIS from local, state and federal agencies and the general public.

The 30-day comment period begins on the date of issuance of this DEIS (April 27, 2006) and ends on May 30, 2006. All written comments, questions or information should be directed to the responsible official.

Fact Sheet

Title and Description

The project is called 500 Fifth Avenue North. The proposal is for the construction of up to approximately 1,000,000 square feet of office space in a secure contiguous campus setting for the visitors and employees of the Bill & Melinda Gates Foundation on an approximately 8-acre site. The site is located on the east side of Fifth Avenue North between Mercer and Harrison Streets, across from the Seattle Center. This EIS also considers the potential impacts of the construction and operation of a visitor learning center to be located in the new parking garage authorized for construction under Master Use Permit 2500762 to be located on the east side of Fifth Avenue North between Republican and Harrison Streets. The visitor learning center will be approximately 26,000 square feet, including exhibit space open to the public and accessory office space. In addition, there is approximately 10,000 square feet of retail space planned for along Fifth Avenue North in the new parking garage.

Sponsor and Approximate Date of Implementation

IRIS Holdings, LLC, a wholly-owned entity of the Bill & Melinda Gates Foundation, is the project sponsor. Construction is expected to begin in the fall of 2007 with occupancy of the first phase of development in 2010.

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Lead Agency Information

The lead agency is the City of Seattle Department of Planning and Development (DPD).

Responsible Official: Molly Hurley, Senior Land Use Planner
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Decisionmaker: Diane Sugimura, Director
Department of Planning and Development
700 Fifth Avenue, Suite 2000
Seattle, Washington 98104

Required Licenses

Seattle Department of Planning and Development: Draft and Final EIS approval; master use permit; major phased development permit; building permit; grading permit; structural permit; mechanical permits; certification of occupancy; and energy code approval. If Alternative 4 is selected for implementation, the proposed skybridge may require additional environmental review.

Seattle Department of Transportation: Street-use permits; curb cut permit; and sidewalk approval.

Seattle Public Utilities: Sewer and water connections.

Seattle Fire Department: Fire Code inspections.

Seattle-King County Department of Public Health: Plumbing permits.

Authors and Principal Contributors to EIS

This DEIS was prepared under the direction of the City of Seattle Department of Planning and Development. Research, analysis and document preparation were provided by the following firms:

URS Corporation (Environmental analysis and document preparation)
1501 Fourth Avenue, Suite 1400
Seattle, Washington 98101-1616

The Transpo Group (Traffic analysis)
11730 118th Avenue NE, Suite 600
Kirkland, Washington 98034-7120

Date of Issuance of EIS

April 27, 2006

Public and Agency Review and Response

In accordance with SEPA guidelines, this DEIS is circulated for a 30-day review period. Information regarding the availability of this DEIS will appear in the *Seattle Daily Journal of Commerce* and in the DPD General Mailed Release Bulletin. Notice will also be posted within DPD's Land Use Division. Agencies, affected tribes, and members of the public are invited to comment on the Draft EIS. Written comments must be received by 5:00 p.m. on May 30, 2006. Written comments should be e-mailed and/or mailed to Molly Hurley, Senior Land Use Planner, at DPD at molly.hurley@seattle.gov, or to the following address:

Molly Hurley, Senior Land Use Planner
Department of Planning and Development
700 Fifth Avenue, Suite 2000

Seattle, Washington 98104

Written comments submitted to DPD during the comment period and relevant to the Draft EIS will be considered in preparing the Final EIS and will be responded to in the Final EIS. The Final EIS will be used by DPD and other agencies in making decisions on the project.

Public Hearing

A public hearing on the Draft EIS will be held at 6:30 pm on Tuesday, May 9, 2006 in Room 1 of the Queen Anne Community Center, 1901 First Avenue West, Seattle, Washington, to gather comments on the environmental impact of the proposal and other issues addressed in the Draft EIS. Oral comments will be taken at the public hearing and will be considered in preparing the Final EIS and will be responded to in the Final EIS.

Approximate Date of Final Environmental Action by Lead Agency

Fall 2006.

Type of Lead Agency Decision

A decision to grant, grant with conditions, or deny the proposed action will be made by the lead agency.

Additional Environmental Review

No additional environmental review beyond this EIS is anticipated for the proposed action. If Alternative 4 is selected for implementation, the proposed skybridge may require additional environmental review.

Other Actions in the Site Vicinity

A Master Use Permit has been issued for the future construction of a parking garage for 1,050 vehicles (one level above-grade parking, four levels below-grade parking), 4,000 square foot office for parking management; and 10,500 square foot of customer service office. The garage is to be located on Fifth Avenue North between Republican and Harrison Streets. The garage will be owned and operated by the Seattle Center and will replace the 1,217 surface parking spaces that currently exist on the site of the proposed action.

A separate Master Use Permit application may be submitted for an approximately 26,000 square foot visitor learning center and 10,000 square feet of retail that may be constructed on the north end of the new parking garage. If constructed, the retail space would be located along Fifth Avenue North. The potential environmental impacts of constructing and operating these uses are included within this EIS.

Separate from the proposed action, the City is planning to conduct remedial action for contaminated groundwater under the site. Project construction is not anticipated to affect the City's groundwater remediation action.

Other Related Material

Background materials and support documents, including submittals to the Magnolia/Queen Anne Design Review Board prepared by the project architects (NBBJ), may be found at Seattle's Department of Planning and Development, File No. 3003599 (formerly 2501890).

Purchase of Copies

Copies of the document have been printed and made available for public distribution at Department of Planning and Development, 700 Fifth Avenue, Suite 2000, Seattle, Washington 98104 in downtown Seattle. Additional copies, if needed, are available from the Department of Planning and Development at the reproduction cost of $0.25 for the first page and $0.10 for each additional page.

Elements of the Environment

The following list of elements of the environment set forth in Chapter 25.05.444 of the Seattle Municipal Code are potential elements that might be included in an EIS. During the scoping period, DPD evaluated the project's potential adverse impacts on each of these elements of the environment. The Transportation items marked "reviewed" are discussed in Chapter 3 of this DEIS. These items were identified as a result of the scoping process carried out in compliance with Section 25.05.408 of the Seattle Municipal Code and determined by DPD to have a potential significant adverse impact on a particular element of the environment. Items marked "not reviewed" have impacts deemed nonsignificant for reasons briefly stated and are not discussed in the Draft EIS. Construction impacts (air quality, noise and transportation) are also discussed in Chapter 3, Section 3.2 of this DEIS.

I. Natural Environment

(a) Earth

(i)	Geology	Not reviewed; site is relatively flat.
(ii)	Soils	Not reviewed.
(iii)	Topography	Not reviewed; site is relatively flat.
(iv)	Unique physical Features	Not reviewed; none exist.
(v)	Erosion/enlargement	Not reviewed; not applicable to site of land area (accretion)

(b) Air

(i)	Air Quality	Not reviewed for impacts from operation; proposal not expected to impact air quality. Dust during construction reviewed as part of Construction Impacts.
(ii)	Odor	Not reviewed; proposal not expected to generate odor.
(iii)	Climate	Not reviewed; proposal not expected to have impacts from wind.

(c) Water

(i)	Surface Water Movement, Quantity or Quality	Not reviewed; no surface water on site.
(ii)	Runoff/absorption	Not reviewed; water quality of runoff will be improved by the proposal by stormwater controls (change from existing parking lots)
(iii)	Floods	Not reviewed; not applicable to this urban site.
(iv)	Groundwater	Not reviewed; groundwater encountered during excavation would be routed to existing storm system.

	(v)	Public water supply	Not reviewed; water consumption of proposal not expected to have an overall impact on City of Seattle water supply.
(d)	Plants and Animals		
	(i)	Habitat	Not reviewed; only usual urban birds can be reasonably expected on site; little habitat on site
	(ii)	Unique species	Not reviewed; none reasonable expected to exist on site.
	(iii)	Fish or wildlife	Not reviewed; not applicable to site.
(e)	Energy and Natural Resources		
	(i)	Amount required/ rate of use/ efficiency	Not reviewed; energy consumption of the proposal (for both construction and operation) is not expected to have an overall impact on the City of Seattle energy supply.
	(ii)	Source/availability	Not reviewed; electrical energy is provided by Seattle City Light.
	(iii)	Nonrenewable resources	Not reviewed; the only use of resources would be for normal building materials.
	(iv)	Conservation and renewable resources	Not reviewed; building is proposed to be LEED certified.
	(v)	Scenic resources	Not reviewed; no impact to protected views are anticipated.
II.	Built Environment		
(a)	Environmental Health		
	(i)	Noise	Not reviewed for impacts from operation; project will generate typical construction noise; traffic noise is not expected to measurably increase existing noise levels.
	(ii)	Risk of explosion	Not reviewed; not applicable to project.
	(iii)	Releases or potential releases to the environment affecting public health, such as toxic or hazardous materials.	Not reviewed; any hazardous materials that may be encountered during soil excavation as part of construction will be removed and disposed of in accordance with State law. Any groundwater encountered during construction that may be contaminated by hazardous materials will be removed and disposed of in accordance with State law.

(b) Land and Shoreline Use

(i)	Relationship to existing land use plans and to estimated population	Not reviewed; project will meet Neighborhood Commercial 3 (NC3) code; no code departures are being requested.
(ii)	Housing	Not reviewed; no housing demolition or creation will occur as a result of the project.
(iii)	Light and glare	Not reviewed; areas protected by SEPA policies would not be shaded by the proposal. Building setbacks of approximately 30 feet from curb line along Fifth Avenue North and approximately 80 feet from curb line along Mercer Street, and extensive landscaping between the building facades and sidewalk areas, would limit the potential for off-site light and glare impacts.
(iv)	Aesthetics	Not reviewed; project is subject to Design Review.
(v)	Recreation	Not reviewed; existing Skate Board Park and basketball court are being relocated by the City of Seattle.
(vi)	Historic and cultural preservation	Not reviewed; history of the site has been prepared by project architects (NBBJ). No historic buildings or features exist on the site.
(vii)	Agricultural crops	Not reviewed; not applicable to the site.

(c) Transportation

(i)	Transportation systems	Reviewed.
(ii)	Vehicular traffic	Reviewed.
(iii)	Waterborne, Rail	Not reviewed; not applicable to the site.
(iv)	Parking	Reviewed.
(v)	Movement and circulation of people or goods	Reviewed.
(vi)	Traffic hazards	Reviewed.

(d) Public Services and Utilities

(i)	Fire	Not reviewed; project will meet current Fire Code and will not include identified fire hazards.
(ii)	Police	Not reviewed; campus will include its own security force.
(iii)	Schools	Not reviewed; proposal will not affect schools.
(iv)	Parks or other	Not reviewed; proposal will not affect existing parks

	recreational facilities	or create an additional demand on nearby parks or recreational facilities.
(v)	Maintenance	Not reviewed; project not expected to measurably increase maintenance needs for public services or utilities.
(vi)	Communications	Not reviewed; communication needs will be those typically required for office use.
(vii)	Water and Storm Water	Not reviewed; proposal will improve existing stormwater collection and filtration, resulting in improved stormwater quality.
(viii)	Sewer and Solid Waste	Not reviewed; sewer and solid waste needs will be those typically required for office use.
(ix)	Other government services or utilities.	Not reviewed; no impacts anticipated. Distribution power lines located along the Taylor Avenue alignment will be undergrounded along Fifth Avenue and along Broad Street. Permits will be obtained through SDOT. During Phase 1, transmission lines along Broad Street may be undergrounded between Sixth Avenue alignment and Republican Street. In future phases, additional power lines may be undergrounded.

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1.0 Summary

1.1 Sponsor's Objectives for the Proposed Action

The primary objectives for the Proposed Action include:

- To develop a multi-phase contiguous office campus consistent with the Seattle Land Use Code's development standards for the site's land use district.
- To accommodate the foundation's current and future space needs.
- To maintain a secure campus environment, without public streets and public walkways through the project site, of sufficient acreage to accomplish the foundation's current and future use needs.
- To demonstrate financial stewardship values to grantees, visitors and the public.
- To strive for sustainable design by conserving resources; and by enhancing local ecosystems by reducing heat, improving air quality and enhancing biodiversity.

1.2 Site and Site Vicinity

The proposed more than 8-acre site is located at 500 Fifth Avenue North on the east side of Seattle Center and south of Seattle's Queen Anne Hill. The site is irregularly shaped, and is bounded by Fifth Avenue North on the west, Mercer Street on the north, Aurora Avenue North (State Route 99) and Broad Street on the east, and Harrison Street on the south. The site includes the vacated rights-of-way for Republican Street, Taylor Avenue North, and Sixth Avenue North. The property is zoned Neighborhood Commercial 3 (NC3) with a maximum height of eight-five (85) feet. It is also located within the Uptown Urban Center as designated by the City's Comprehensive Plan. Urban Centers are areas that are intended to be high density employment and residential areas that are well served by transit. See Figure 1-1 Site Vicinity.

The site is generally level, but slopes slightly downward toward the east. The site is currently developed with surface parking lots, a Skate Board park, a basketball court, and the Seattle Sonics practice facility. The Sonics lease of the practice facility expires in 2010. The City of Seattle is relocating the Skate Board park and basketball court. A new parking garage is being constructed for the Seattle Center adjacent to the site, on the east side of Fifth Avenue North between Harrison and Republican Streets, with relocation of affected utilities. The garage is intended to replace the surface parking. These actions are being undertaken separate from the proposed action.

An approximately 26,000 square foot visitor learning center and 10,000 square feet of retail space may be constructed on the north end of the new parking garage. If constructed, the retail space would be along Fifth Avenue North. The visitor learning center would include both exhibit space open to the public and accessory office space. The purpose of the visitor learning center will be for the public to learn about the foundation and its mission. The potential environmental impacts of constructing and operating these uses are included within this EIS.

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Figure 1-1
Site Vicinity

SOURCE: The Transpo Group

500 Fifth Avenue North

1.3 Potential for Future Improvements to Area Roadways

There are improvement projects that are proposed for nearby roadways that could affect the design or traffic from the project:

- Mercer Street Improvements
- Aurora Avenue Improvements
- Reconnection of Street Grid (including Sixth Avenue across the eastern portion of the site)

Planning for the Mercer Street improvements is more advanced than planning for the other proposed improvements. However, funding has not been finalized for any of these improvements, nor have construction schedules been established.

The Mercer Street improvements call for the conversion of Mercer Street from one-way to two-way operations, with the provision of three-travel lanes in each direction and additional turn lanes at intersections. If implemented along the northern boundary of the project site, Mercer Street would be widened, requiring up to 50 feet in additional setback from the existing roadway.

The Aurora Avenue improvements would reconfigure access to/from Aurora Avenue to the north of the Battery Street tunnel. The current proposal would lower Aurora Avenue between Roy Street and Denny Way, and would reconnect several streets across Aurora Avenue, including Harrison Street, Thomas Street, and possibly Republican Street. In addition, the connections between Aurora Avenue and the surface street network would be modified to provide additional access points at Roy Street and Republican Street. Currently included in the reconnection of the streets across Aurora Avenue is the reconnection of Sixth Avenue between Roy Street and Harrison Street, through the proposed project site.

1.4 Description of the Alternatives

There are three *Action Alternatives* discussed in this EIS and the *No Action Alternative*. All *Action Alternatives* assume the existing surface parking will be replaced with a structured parking garage being constructed on the east side of Fifth Avenue between Harrison and Republican Streets under separate permits and environmental review. The preliminary design of *Alternative 4* would accommodate the reconnection of Sixth Avenue through the proposed project site if improvements are made to Aurora Avenue and Mercer Street.

A table comparing the alternatives (Table 1-1) is proved at the end of this subsection.

1.4.1 Alternative 1 – No Action

For the purpose of establishing a baseline condition, a *No Action Alternative (Alternative 1)* is studied. The *No Action Alternative* would leave the existing site as is, unless and until another proposal is approved. The *No Action Alternative* is defined by the following assumptions:

- Existing 1,217 space surface parking lot remains as is
- Existing access to parking lot remains as is
- The new Seattle Center garage is complete and operational
- The Sonics facility remains as is and operational until September 30, 2010; after that time there would be a similar use in the building
- Roadways remain as is (no Mercer Street, Aurora Avenue North, or Sixth Avenue North improvements)
- No sidewalk improvements are made onsite
- Existing utilities remain as is, except for utilities affected by construction of the Seattle Center garage

1.4.2 Alternative 2 — 1,000,000 Square Foot Development Without Sixth Avenue North Improvements

This alternative would provide a typical level of office campus development, with standard width office buildings and surface parking, including minimum setbacks, **with no** improvements to Mercer Street, Aurora Avenue North or reconnection of Sixth Avenue North.

- Building square feet
  - Approximately 420,000 square feet on opening day (approximately Year 2010) with 450 parking spaces (204 spaces constructed on-site and 246 spaces provided by covenant in the adjacent Seattle Center Garage)
  - Approximately 1,000,000 at end of 15-year MPD (approximately Year 2025) with 1,226 parking spaces (980 spaces constructed on-site and 246 spaces provided by covenant in the adjacent Seattle Center Garage)
- Campus would maintain a secure environment for foundation workers and guests; there would be no public streets or public walkways through the project site.
- New Seattle Center garage is complete and operational
- No improvements made to Mercer Street, Aurora Avenue North , or Sixth Avenue North
- Sidewalk improvements constructed along Fifth Avenue North and Mercer Street
- Sonics facility closed in 2010; site redeveloped for campus use
- Affected utilities would be relocated

1.4.3 Alternative 3 – 900,000 Square Foot Site Development Without Sixth Avenue North Improvements

This alternative would provide a less dense or intense level of development than *Alternative 2* with narrower buildings, more open space, and wider setbacks. This alternative would be designed to accommodate 900,000 square feet **with no** improvements to Mercer Street, Aurora Avenue North or reconnection of Sixth Avenue North.

- Building square feet
  - Approximately 420,000 square feet on opening day (approximately Year 2010) with 450 parking spaces (204 spaces constructed on-site and 246 spaces provided by covenant in the adjacent Seattle Center Garage)

  - Approximately 900,000 at end of 15-year MPD (approximately Year 2025) with 1,226 parking spaces (980 spaces constructed on-site and 246 spaces provided by covenant in the adjacent Seattle Center Garage)
- Campus would maintain a secure environment for foundation workers and guests; there would be no public streets or public walkways through the project site.
- New Seattle Center garage is complete and operational
- No improvements made to Mercer Street, Aurora Avenue North, or Sixth Avenue North
- Sidewalk improvements constructed along Fifth Avenue North and Mercer Street
- Sonics facility closed in 2010; site redeveloped for campus use
- Affected utilities would be relocated

1.4.4 Alternative 4 – 900,000 Square Foot Site Development With Sixth Avenue North Improvements

Like *Alternative 3*, this alternative would provide a less dense or intense level of development than *Alternative 2* with narrower buildings, more open space, and wider setbacks. This alternative would be designed to accommodate 900,000 square feet **with** improvements to Mercer Street, Aurora Avenue North and a reconnection of Sixth Avenue North.

- Building square feet
  - Approximately 420,000 square feet on opening day (approximately Year 2010) with 450 parking spaces (204 spaces constructed on-site and 246 spaces provided by covenant in the adjacent Seattle Center Garage)
  - Approximately 900,000 at end of 15-year MPD (approximately Year 2025) with 1,226 parking spaces (980 spaces constructed on-site and 246 spaces provided by covenant in the adjacent Seattle Center Garage)
- Campus would maintain a secure environment for foundation workers and guests; there would be no public streets or public walkways through the project site
- New Seattle Center garage is complete and operational
- Roadway configuration includes proposed improvements to Sixth Avenue North, Mercer Street, and Aurora Avenue North
- Sidewalk improvements constructed along Fifth Avenue North and Mercer Street
- Sonics facility closed in 2010; site redeveloped for campus use
- Affected utilities would be relocated

Table 1-1
Comparison of Action Alternatives

	Alternative 2 (without 6th Avenue N Improvements)	Alternative 3 (without 6th Avenue N Improvements)	Alternative 4 (with 6th Avenue N Improvements)
Total approximate square feet	1,000,000	900,000	900,000
Phase I Development approximate square feet	420,000	420,000	420,000
Setback from Existing Fifth Avenue North Curb Line	30 feet	30 feet	30 feet
Setback from Existing Mercer Street Curb Line	30 feet	80 feet	80 feet
Access to Site	Fifth Avenue North, Republican and Mercer Streets	Fifth Avenue North, Republican and Mercer Streets	Fifth Avenue North, Republican and Mercer Streets

1.4.5 Visitor Learning Center and Retail Space

With each action alternative, a visitor learning center and retail space may be constructed on the north end of the adjacent Seattle Center garage project. The purpose of the visitor learning center is for the public to learn about the Bill & Melinda Gates Foundation and its mission. The learning center would be approximately 26,000 square feet, including exhibit space open to the public and accessory office space. Consistent with other exhibit venues in Seattle, the visitor learning center is expected to be open to the public from 10 to 5 weekdays and 10 to 6 on weekends. If constructed, the retail space would be approximately 10,000 square feet and located along the Fifth Avenue North portion of the garage.

1.5 Impacts and Mitigating Measures

Table 1-2, located at the end of this chapter, describes, compares, and summarizes the impacts analysis for all of the alternatives, including potential transportation impacts and temporary construction impacts (air quality, noise and transportation).

As discussed in Chapter 3, transportation impacts from the build-out of the action alternatives are anticipated to be mitigated except for the level of service (LOS) of Stewart Street/Denny Way and Howell Street/Yale Avenue intersections. The LOS at these two intersections would remain as potentially unavoidable adverse impacts. Construction impacts from development alternatives are anticipated to be mitigated.

Table 1-3 summarizes the mitigation measures discussed in Chapter 3 to mitigate for potential transportation and temporary construction impacts.

1.6 Secondary and Cumulative Impacts

Secondary and cumulative impacts have been addressed as part of the primary transportation analysis. The transportation analysis incorporates pipeline projects and projected growth rates into the analysis of impacts.

Table 1-2
Summary of Potential Environmental Impacts

	Environmental Impact by Alternative			
	Alternative 1 – No Action	**Alternative 2**	**Alternative 3**	**Alternative 4**
Initial Phase (Year 2010)				
Transportation				
Traffic Volumes	An annually compounded growth rate of 0.5 percent plus 22 "pipeline" projects.	3,635 daily trips and 565 to 635 peak hour trips. No impacts.	Same as Alternative 2.	Same as Alternative 2.
Traffic Operations - Level of Service	As compared to Year 2005, two intersections would continue to operate poorly (Fairview Ave./Mercer St. in AM peak hour and Dexter Ave/Mercer St in PM peak hour) and eight additional AM intersections and 11 additional PM intersections LOS would degrade.	Five additional AM intersections LOS would degrade (one to LOS E), and four PM intersections LOS would degrade to a LOS below that estimated for Alternative 1 (No Action) (two to LOS E)	Same as Alternative 2.	Same as Alternative 2. No improvements planned for Mercer St, Sixth Ave N, or Aurora Ave N would be complete prior to 2010.
Traffic Operations - Site Access	No impacts.	No impacts.	Same as Alternative 2.	Same as Alternative 2.
Transit & Rail	No impacts.	No impacts.	Same as Alternative 2.	Same as Alternative 2.
Non-Motorized Facilities	No impacts.	Increased use of non-motorized facilities with development. Redevelopment would enhance facilities adjacent to site. No impacts	Same as Alternative 2.	Same as Alternative 2.
Safety	As compared to Year 2005, there would be an Increased potential for impacts at three intersections due to increased traffic volumes (Fifth Ave /Mercer St, Ninth Ave /Mercer St, Westlake Ave/Denny Way).	Possible proportionate increase in the probability of traffic accidents at 5th Ave/Mercer St, NinthAve/Mercer St, and Westlake Ave/Denny Way.	Similar to or slightly less than Alternative 2.	Similar to or slightly less than Alternative 2.
Parking	No impacts.	A potential parking supply deficit of 605 stalls without TMP and a potential deficit of 304 stalls with TMP.	Same as Alternative 2.	Same as Alternative 2.

Table 1-2 (Continued)
Summary of Potential Environmental Impacts

	Environmental Impact by Alternative			
	Alternative 1 – No Action	**Alternative 2**	**Alternative 3**	**Alternative 4**
Build Out (Year 2025)				
Transportation				
Traffic Volumes	An annually compounded growth rate of 0.5 percent. Plus 22 pipeline projects, no reduction.	5,600 daily trips and 985 to 1,050 peak hour trips. Impacts would be concentrated along the west site frontage intersections (Fifth Ave N at Harrison, Republican and Mercer Streets) and diffuse with progressive distance from the site.	5,100 daily trips and 885 to 945 peak hour trips. Impacts would be concentrated along the west site frontage intersections (Fifth Ave N at Harrison, Republican and Mercer Streets) and diffuse with progressive distance from the site.	Same as Alternative 3 except reduction of impacts along the west site frontage intersections (Fifth Ave N at Harrison, Republican and Mercer Streets).
Traffic Operations - Level of Service	Two intersections would continue to operate poorly (Fairview/ Ave/Mercer St in AM peak hour and Dexter Ave/Mercer St in PM peak hour)four additional AM intersections and seven additional PM intersections would degrade to LOS E or F.	Seven intersections would continue to operate at LOS F with or without Alternative 2. Six additional AM intersections would degrade to a LOS below that anticipated with Alternative 1 (No Action), including two to LOS F and two to LOS E. Seven additional PM intersection LOS would degrade, including one to LOS F. Fairview Ave/Denny Way would be mitigated, Stewart St/Denny Way and Howell St/Yale Ave would remain potentially unavoidable adverse impacts.	Seven intersections would continue to operate at LOS F with or without Alternative 3. Six additional AM intersection LOS would degrade to a LOS below that anticipated with Alternative 1 (No Action), including four to LOS E. Five additional PM intersection LOS would degrade, including one to LOS F Fairview Ave/Denny Way would be mitigated, Stewart St/Denny Way and Howell St/Yale Ave would remain potentially unavoidable adverse impacts.	Similar to Alternative 3 except reduction of impacts along the west site frontage intersections along Fifth Ave N at Harrison, Republican and Mercer Streets. Fairview Ave/Denny Way would be mitigated, Stewart St/Denny Way and Howell St/Yale Ave would remain potentially unavoidable adverse impacts.
Traffic Operations - Site Access	No impacts.	No impacts.	Same as Alternative 2.	Similar to Alternative 2 but with additional site access along the newly created Sixth Ave frontage.
Transit & Rail	No impacts.	No impacts.	Same as Alternative 2.	Same as Alternative 2.
Non-Motorized Facilities	No impacts.	Increased use of non-motorized facilities with TMP. Redevelopment	Same as Alternative 2.	Same as Alternative 2.

Table 1-2 (Continued)
Summary of Potential Environmental Impacts

	Environmental Impact by Alternative			
	Alternative 1 – No Action	**Alternative 2**	**Alternative 3**	**Alternative 4**
		would enhance facilities adjacent to site. No impacts.		
Safety	Increased potential for impacts at three intersections due to increased traffic volumes (5th Ave/Mercer St, Ninth Ave/Mercer St, Westlake Ave/Denny Way)	Possible proportionate increase in the probability of traffic accidents at Fifth Ave/Mercer St, NinthAve/Mercer St, and Westlake Ave/Denny Way.	Similar to or slightly less than Alternative 2.	Similar to or slightly less than Alternative 2.
Parking	No change to parking. No impacts.	A potential parking supply deficit of 577 stalls with TMP.	A potential parking supply deficit of 403 stalls with TMP.	Same as Alternative 3.
Construction				
Air Quality	No impacts.	Dust and temporary increase in vehicular emissions from construction equipment.	Same as Alternative 2.	Same as Alternative 2.
Noise	No impacts.	Temporary increase in sound levels from construction equipment and vehicles during daytime work days.	Same as Alternative 2.	Same as Alternative 2.
Transportation – Initial Phase	No impacts.	200 to 400 truck trips per day during the 2 to 4 month excavation phase; balance of construction truck trips will be approximately 50 to 75 per day.	Same as Alternative 2.	Same as Alternative 2.
Transportation – Build Out	No impacts.	The total amount of material to be removed is expected to be consistent with initial phase I. Truck trips are expected to similar to initial phase. Phasing of future work is not yet known.	Similar to or slightly less than Alternative 2.	Similar to or slightly less than Alternative 2.

Table 1-3
Summary of Potential Mitigation Measures

Transportation	
Traffic Operations	• The project proponent would participate in the South Lake Union Transportation Plan aimed at improvements to area roadways. • A TMP is proposed to lessen the dependence of campus staff on single occupancy vehicles. The TMP goals and supporting elements would be consistent with City TMP requirements. • Optimization of signal timing is proposed at the Fairview Ave./Denny Way intersection to mitigate impacts from build-out of the development alternatives, to improve LOS during the PM peak hour.
Parking	• There is available off-street weekday daytime parking in the surrounding area to accommodate the potential parking demand of both the initial phase and full build-out of the campus.
Construction	
Air Quality	• Emissions from construction equipment and trucks would be reduced by using new and/or well-maintained equipment. Avoiding prolonged periods of vehicle idling and engine-powered equipment would also reduce emissions. • Trucking of material to and from the construction areas would be controlled to minimize traffic congestion during peak travel times. This would minimize secondary air quality impacts caused by reduced travel speeds. • Dust produced by construction activities could be reduced by spraying areas of exposed soils and construction roadways with water or dust suppressants. Areas that may be exposed for prolonged periods of time may be paved, planted with a vegetation ground cover, or covered with tarps or gravel, as necessary. • The amount of fugitive soil carried out of the construction area by exiting trucks can be minimized by wheel washing and by covering dusty truck loads. • Fugitive soil that is carried out of the construction area on existing vehicles can be reduced with an effective street-cleaning effort.
Noise	• To reduce the noise impact of construction on nearby properties, construction activities other than in totally enclosed floors could be limited to non-holiday weekdays between 7:30 A.M. and 6:00 P.M. and Saturdays from 9:00 A.M. to 5:00 P.M. Work outside these times should only be allowed if undertaken within the specific context of a noise-mitigation plan submitted to DPD and approved by the DPD planner. • Construction noise can be mitigated with the use of properly sized and maintained mufflers, engine intake silencers, or engine enclosures; and by turning off equipment when not in use.
Transportation	The owner(s) and/or responsible party(s) shall secure DPD Land Use Division approval of construction phase transportation and pedestrian circulation plans. These plans should consider impacts during any demolitions and during construction of the building. The plans shall address the following: • Ingress/egress of construction equipment and trucks. • Truck access routes, to and from the site, for the excavation and construction phases. • Potential temporary displacement/relocation of any nearby bus stops. • Information to be posted to provide drivers and pedestrians with advance notice of traffic lane or sidewalk closures, including locations of re-routing pedestrian movements. • Provision of safe pedestrian and vehicular circulation adjacent to the construction site through the use of temporary sidewalks, signs and manual traffic control (flaggers). • Regular sweeping and washing operations on streets adjacent to the site • Impacts and mitigation of trips associated with construction and/or demolition activities during major events at Seattle Center.

2.0 Description of Alternatives

2.1 Sponsor's Objectives for the Proposed Action

The primary objectives for the Proposed Action include:

- To develop a multi-phase contiguous office campus consistent with the Seattle Land Use Code's development standards for the site's land use district.
- To accommodate the foundation's current and future space needs.
- To maintain a secure campus environment, without public streets and public walkways through the project site, of sufficient acreage to accomplish the foundation's current and future use needs.
- To demonstrate financial stewardship values to grantees, visitors and the public.
- To strive for sustainable design by conserving resources; and by enhancing local ecosystems by reducing heat, improving air quality and enhancing biodiversity.

2.2 Site and Site Vicinity

The proposed more than 8-acre site is located at 500 Fifth Avenue North on the east side of Seattle Center and south of Seattle's Queen Anne Hill. The site is irregularly shaped, and is bounded by Fifth Avenue North on the west, Mercer Street on the north, Aurora Avenue North (State Route 99) and Broad Street on the east, and Harrison Street on the south. The site includes the vacated rights-of-way for Republican Street, Taylor Avenue North, and Sixth Avenue North. The property is zoned Neighborhood Commercial 3 (NC3) with a maximum height of eight-five (85) feet. It is also located within the Uptown Urban Center as designated by the City's Comprehensive Plan. Urban Centers are areas that are intended to be high density employment and residential areas that are well served by transit. See Figure 2-1 Project Site.

The site is generally level, but slopes slightly downward toward the east. The site is currently developed with surface parking lots, a Skate Board park, a basketball court, and the Seattle Sonics practice facility. The Sonics lease of the practice facility expires in 2010. The City of Seattle is relocating the Skate Board park and basketball court. A new parking garage is being constructed for the Seattle Center adjacent to the site, on the east side of Fifth Avenue North between Harrison and Republican Streets, with relocation of affected utilities. The garage is intended to replace the surface parking. These actions are being undertaken separate from the proposed action.

An approximately 26,000 square foot visitor learning center and 10,000 square feet of retail space may be constructed on the north end of the new parking garage. If constructed, the retail space would be along Fifth Avenue North. The visitor learning center would include both exhibit space open to the public and accessory office space. The purpose of the visitor learning center will be for the public to learn about the foundation and its mission. The potential environmental impacts of constructing and operating these uses are included within this EIS.

33757657_05.CDR

Figure 2-1
Project Site

SOURCE: nbbj

500 Fifth Avenue North

2.3 City of Seattle Permitting

The campus would be permitted by the City of Seattle as a "major phased development". This permit is available for sites over five acres that are being developed as a campus with at least 200,000 square feet of space. The permit approval is valid for 15 years and allows for staging or phasing of the construction over time.

The construction of this project would proceed in phases, under the major phased development permit. The initial phase for each Action Alternative is planned to be approximately 420,000 square feet.

2.4 Potential for Future Improvements to Area Roadways

There are improvement projects that are proposed for nearby roadways that could affect the design or traffic from the project:

- Mercer Street Improvements
- Aurora Avenue North Improvements
- Reconnection of Street Grid

Planning for the Mercer Street improvements is more advanced than planning for the other proposed improvements. However, funding has not been finalized for any of these improvements, nor have construction schedules been established.

The Mercer Street improvements call for the conversion of Mercer Street from one-way to two-way operations, with the provision of three-travel lanes in each direction and additional turn lanes at intersections. If implemented along the northern boundary of the project site, Mercer Street would be widened, requiring up to 50 feet in additional setback from the existing roadway.

The Aurora Avenue North improvements would reconfigure access to/from Aurora Avenue to the north of the Battery Street tunnel. The current proposal would lower Aurora Avenue North between Roy Street and Denny Way, and would reconnect several streets across Aurora Avenue, including Harrison Street, Thomas Street, and possibly Republican Street. In addition, the connections between Aurora Avenue North and the surface street network would be modified to provide additional access points at Roy Street and possibly Republican Street. Currently included in the reconnection of the streets across Aurora Avenue is the reconnection of Sixth Avenue North between Roy Street and Harrison Street, through the proposed project site.

2.5 Development of Alternatives

The site is proposed for development as the office campus headquarters for the Bill & Melinda Gates Foundation. Development would occur in phases beginning in late 2007 with the first phase of approximately 420,000 square feet planned for occupancy in 2010. This would be the foundation's long-term headquarters with flexibility to develop over time.

The first phase of development would include office and meeting space and would be constructed in the northwest corner of the site near Fifth Avenue North and Mercer Street. Primary access to the campus will be from Fifth Avenue North and Republican Street.

The foundation is designing an office campus to meet the following principles that have been identified by the applicant:

- For neighbors:
  - The development will fit with the size and scale of the surrounding neighborhood.
  - The design will be inspiring and creative, and fit within the neighborhood.
  - The campus will be secure, in a low profile way.
  - The edges of the campus will be well defined and landscaped.
  - The design will integrate sustainable materials and methods.

- For foundation workers:
  - The design must create a sense of place that reflects the foundation's work in health and learning.
  - The buildings will be connected in a campus-like setting designed to facilitate interaction, collaboration and learning.
  - The campus design will include green open spaces.
  - The design will provide access to natural light for all workers.

The design opportunities for the site are driven by the following considerations:

- Shape and size of the overall parcel
- Available vehicular access points
- New Seattle Center parking garage location east of Fifth Avenue North between Harrison and Republican Streets.

2.6 Alternative 1 — No Action

For the purpose of establishing a baseline condition, a *No Action Alternative (Alternative 1)* is studied. The *No Action Alternative* would leave the existing site as is, unless and until another proposal is approved. The *No Action Alternative* is defined by the following assumptions:

- Existing 1,217 space surface parking lot remains as is
- Existing access to parking lot remains as is
- The new Seattle Center garage is complete and operational
- The Sonics facility remains as is and operational until September 30, 2010; after that time there would be a similar use in the building
- Roadways remain as is (no Mercer Street, Aurora Avenue North, or Sixth Avenue North improvements)
- No sidewalk improvements are made onsite
- Existing utilities remain as is, except for utilities affected by construction of the Seattle Center garage

2.7 Alternative 2 — 1,000,000 Square Foot Development Without Sixth Avenue North Improvements

This alternative would provide a typical level of office campus development area, with standard width office buildings and surface parking, including minimum setbacks, **with no** improvements to Mercer Street, Aurora Avenue North or reconnection of Sixth Avenue North. See Figure 2-2 – *Alternative 2 – 1,000,000 Sq. Ft. Development without 6th Avenue Improvements*.

- Building square feet
  - Approximately 420,000 square feet on opening day (approximately Year 2010) with 450 parking spaces (204 spaces constructed on-site and 246 spaces provided by covenant in the adjacent Seattle Center Garage)
  - Approximately 1,000,000 at end of 15-year MPD (approximately Year 2025) with 1,226 parking spaces (980 spaces constructed on-site and 246 spaces provided by covenant in the adjacent Seattle Center Garage)
- Campus would maintain a secure environment for foundation workers and guests; there would be no public streets or public walkways through the project site.
- New Seattle Center garage is complete and operational
- No improvements made to Mercer Street, Aurora Avenue North , or Sixth Avenue North
- Sidewalk improvements constructed along Fifth Avenue North and Mercer Street
- Sonics facility closed in 2010; site redeveloped for campus use
- Affected utilities would be relocated

The building set backs would be approximately 30 feet from the existing Mercer Street and Fifth Avenue North existing curb lines. Primary exterior materials would include the use of stone and clear glazing. Additional materials may include burnished metal panels and detailing. Glass selection would seek to emphasize low-reflective qualities and window wall systems will typically utilize aluminum mullions. Landscape material between the building and the street property line would further reduce any reflectivity. On-site parking would be provided for 204 vehicles beneath the first phase buildings, with a total of 980 spaces with full campus build-out.

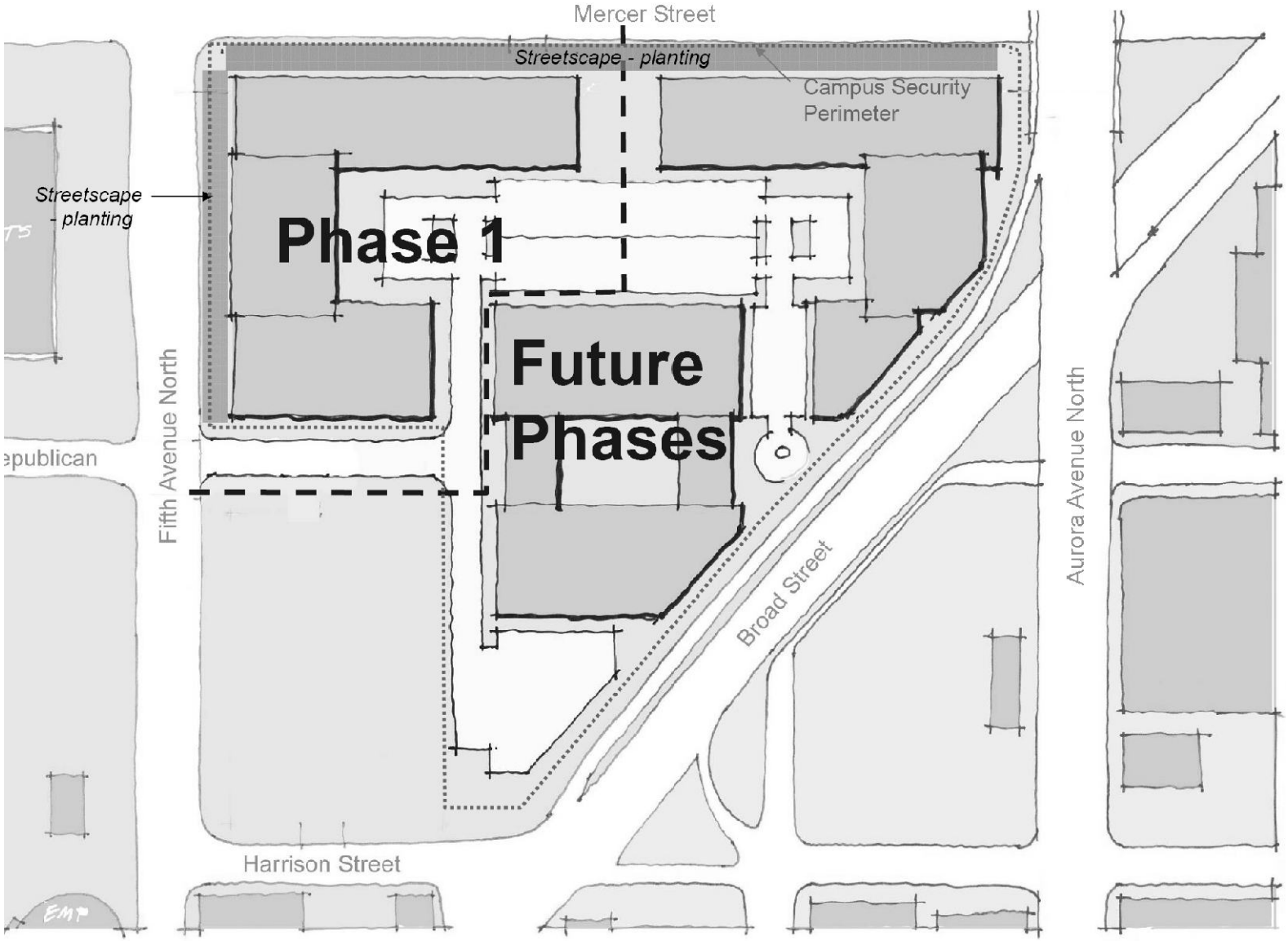

Figure 2-2

Alternative 2 – 1,000,000 Sq. Ft. Development Without 6th Avenue Improvements

SOURCE: nbbj

2.8 Alternative 3 — 900,000 Square Foot Development Without Sixth Avenue North Improvements

This alternative would provide a less dense or intense level of development than than *Alternative 2* with narrower buildings, more open space, and wider setbacks. This alternative would be designed to accommodate 900,000 square feet **with no** improvements to Mercer Street, Aurora Avenue North or reconnection of Sixth Avenue North.

- Building square feet
  - Approximately 420,000 square feet on opening day (approximately Year 2010) with 450 parking spaces (204 spaces constructed on-site and 246 spaces provided by covenant in the adjacent Seattle Center Garage)
  - Approximately 900,000 at end of 15-year MPD (approximately Year 2025) with 1,226 parking spaces (980 spaces constructed on-site and 246 spaces provided by covenant in the adjacent Seattle Center Garage)
- Campus would maintain a secure environment for foundation workers and guests; there would be no public streets or public walkways through the project site.
- New Seattle Center garage is complete and operational
- No improvements made to Mercer Street, Aurora Avenue North, or Sixth Avenue North
- Sidewalk improvements constructed along Fifth Avenue North and Mercer Street
- Sonics facility closed in 2010; site redeveloped for campus use
- Affected utilities would be relocated

As with *Alternatives 2* and *4*, the building set back will be approximately 30 feet from the existing Fifth Avenue North curb line, and, similar to *Alternative 4*, approximately 80 feet from the existing Mercer Street curb line. The primary exterior materials would be the same as described for *Alternative 2*. Landscape material between the building and the street property line will further reduce any reflectivity. On-site parking will be provided for 204 vehicles beneath the first phase buildings with a total of 980 spaces with full campus build-out.

See Figure 2-3 – *Alternative 3 – 900,000 Square Foot Development Without 6th Avenue Improvements*.

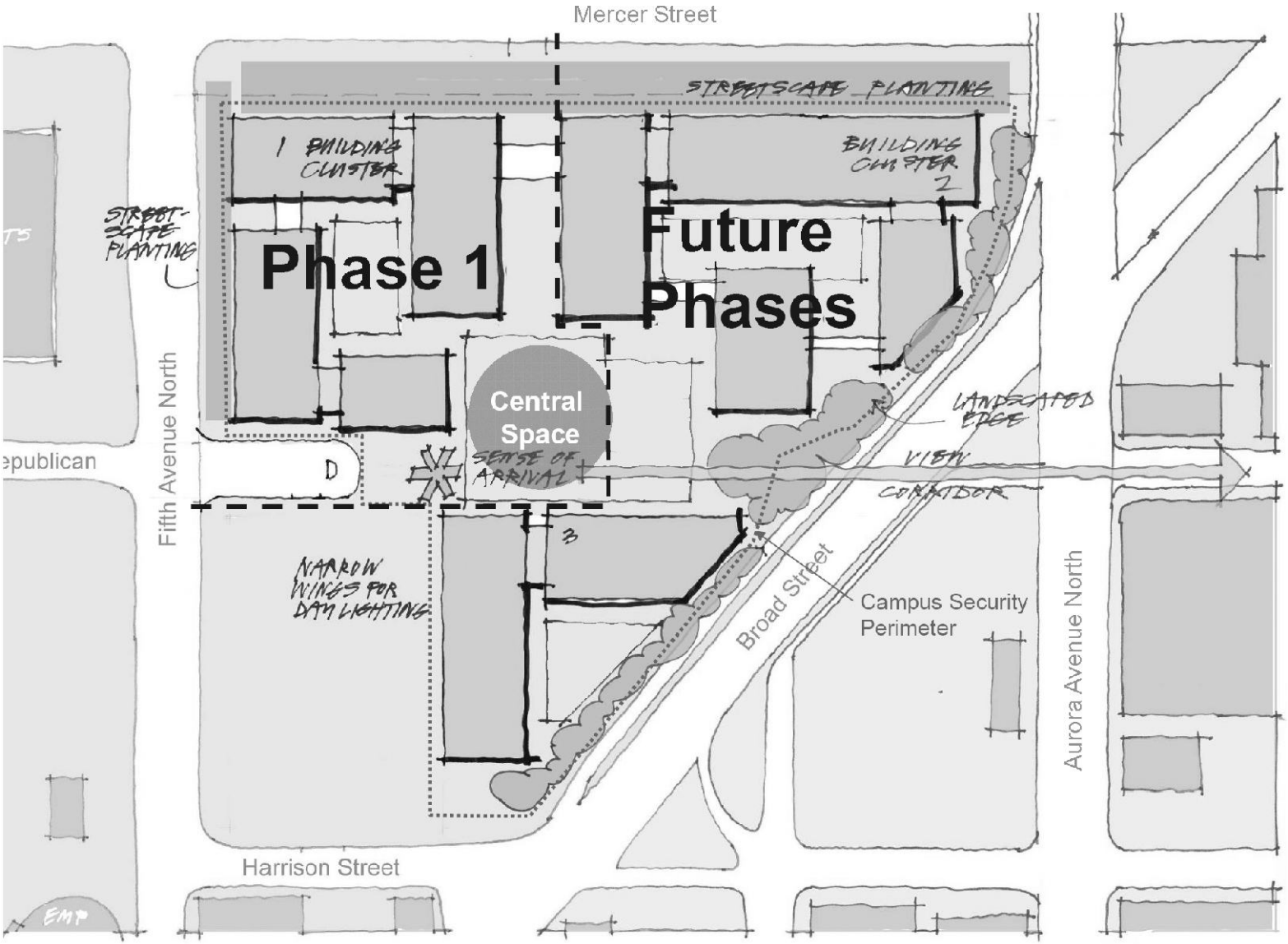

Figure 2-3

Alternative 3 – 900,000 Sq. Ft. Development Without 6th Avenue Improvements

SOURCE: nbbj

2.9 Alternative 4 — 900,000 Square Foot Site Development With Sixth Avenue North Improvements

Like *Alternative 3*, this alternative would provide a less dense or intense level of development than than *Alternative 2* with narrower buildings, more open space, and wider setbacks. This alternative would be designed to accommodate 900,000 square feet **with** improvements to Mercer Street, Aurora Avenue North and a reconnection of Sixth Avenue North.

- Building square feet
  - Approximately 420,000 square feet on opening day (approximately Year 2010) with 450 parking spaces (204 spaces constructed on-site and 246 spaces provided by covenant in the adjacent Seattle Center Garage)
  - Approximately 900,000 at end of 15-year MPD (approximately Year 2025) with 1,226 parking spaces (980 spaces constructed on-site and 246 spaces provided by covenant in the adjacent Seattle Center Garage)
- Campus would maintain a secure environment for foundation workers and guests; there would be no public streets or public walkways through the project site
- New Seattle Center garage is complete and operational
- Roadway configuration includes proposed improvements to Sixth Avenue North, Mercer Street, and Aurora Avenue North
- Sidewalk improvements constructed along Fifth Avenue North and Mercer Street
- Sonics facility closed in 2010; site redeveloped for campus use
- Affected utilities would be relocated

As with *Alternatives 2* and *3*, the building set back will be approximately 30 feet from the existing Fifth Avenue North curb line, and, similar to *Alternative 3*, approximately 80 feet from the existing Mercer Street curb line. The primary exterior materials would be the same as described for Alternative 2. Landscape material between the building and the street property line will further reduce any reflectivity. On-site parking will be provided for 204 vehicles beneath the first phase buildings with a total of 980 spaces with full campus build-out.

While funding has not been finalized for the proposed transportation improvements to Sixth Avenue North, Mercer Street, and Aurora Avenue North, and no construction schedules have been established, if these projects move forward *Alternative 4* would allow for future phases of the campus to be configured along both sides of reconnected Sixth Avenue North. Figure 2-4 illustrates how a skybridge might connect facilities on either side of reconnected Sixth Avenue North[1]. See Figure 2-4 – *Alternative 4 – 900,000 Square Foot Development With 6th Avenue Improvements*.

[1] If *Alternative 4* is selected for implementation, the proposed skybridge may require additional environmental review.

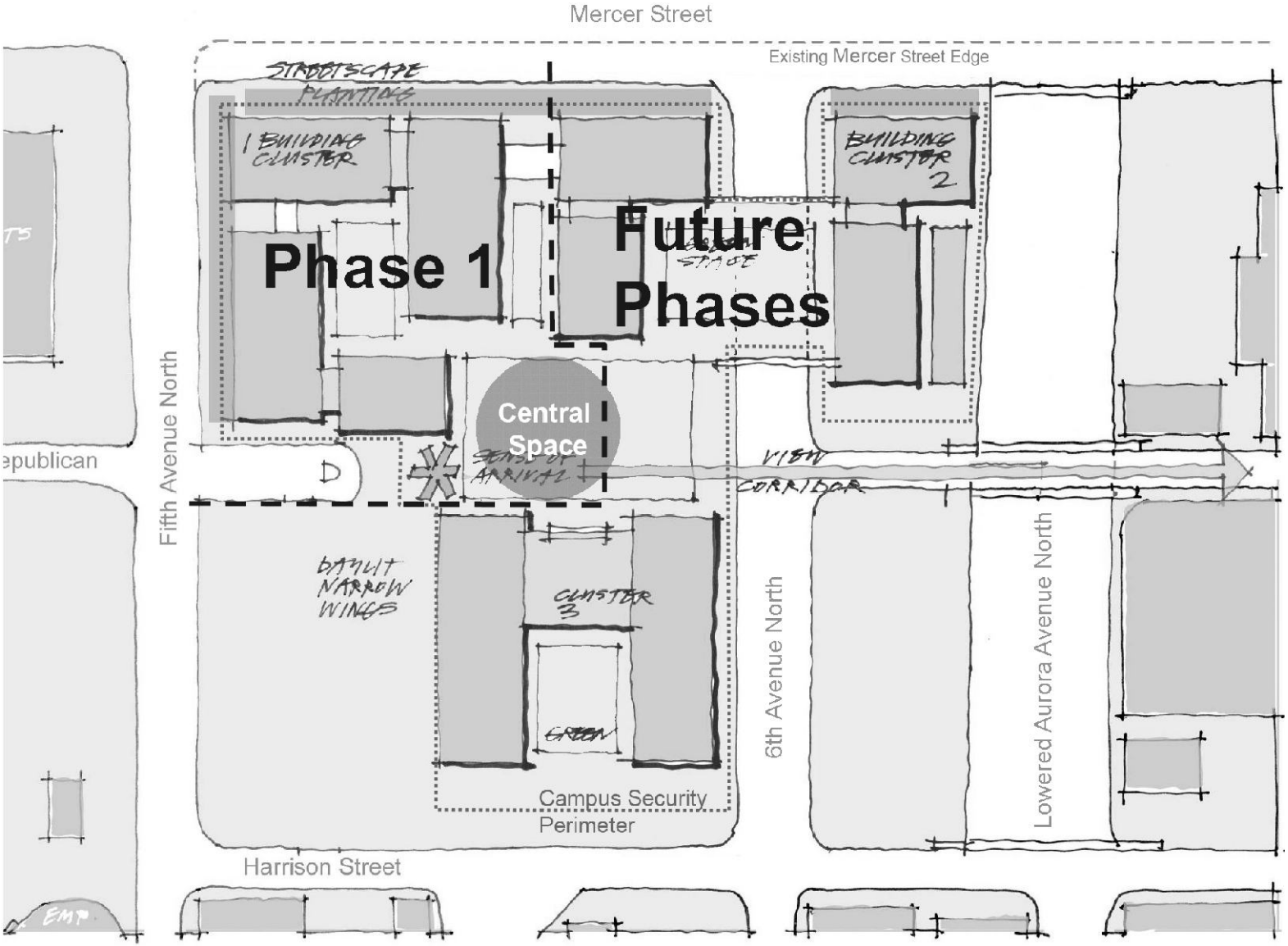

Figure 2-4

Alternative 4 – 900,000 Sq. Ft. Development With 6th Avenue Improvements

SOURCE: nbbj

2.10 Visitor Learning Center and Retail

With each action alternative, a visitor learning center and retail space may be constructed on the north end of the adjacent Seattle Center garage project. The purpose of the visitor learning center is for the public to learn about the Bill & Melinda Gates Foundation and its mission. The learning center would be approximately 26,000 square feet, including exhibit space open to the public and accessory office space. Consistent with other exhibit venues in Seattle, the visitor learning center is expected to be open to the public from 10 to 5 weekdays and 10 to 6 on weekends. If constructed, the retail space would be approximately 10,000 square feet and located along the Fifth Avenue North portion of the garage.

See Figure 2-5 *Proposed Location Visitor Learning Center and Retail Space*.

2.11 Benefits and Disadvantages of Delaying Project Implementation

The benefits of deferring action on the proposal would include:

- Delaying construction impacts (primary benefit); however, the phased nature of this development proposal will postpone some of the construction impacts until later phases of the development.
- Allowing more certainty regarding potential improvements to surrounding roadways.

The disadvantages of deferring action on the proposed project would include:

- Forcing the applicant to find another site to address its need for a consolidated campus. The current office space is dispersed, which encumbers foundation activities and hampers communication between foundation staff.
- The loss of millions in revenues to the City for sale of the property.

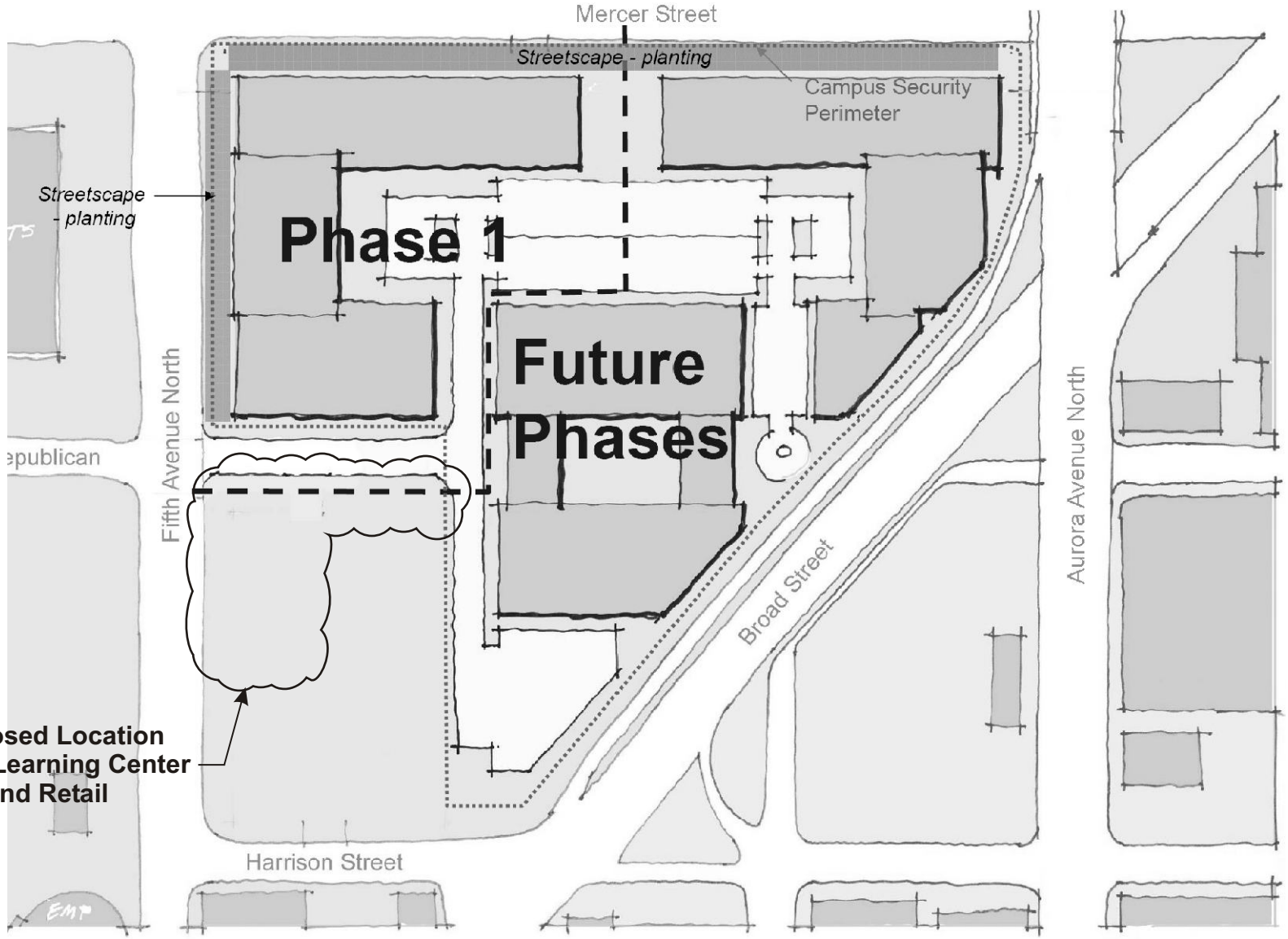

Figure 2-5

Proposed Location Visitor Learning Center and Retail Space

SOURCE: nbbj

3.0 Affected Environment, Environmental Impacts, Mitigating Measures and Significant Unavoidable Adverse Impacts

DPD evaluated the project's potential adverse impacts on each elements of the environment. DPD determined that the project would have a potential significant adverse impact on transportation, and those impacts and potential mitigating measures are discussed below. Construction impacts (air quality, noise, and transportation) are also discussed. See Section 3.2 of this DEIS.

3.1 Transportation

This section provides a summary of the traffic impact analysis for the project, which is published in its entirety as Appendix A.

3.1.1 Affected Environment

The following section documents the existing transportation network and conditions in the vicinity of the proposed project, including the existing street system, traffic volumes, traffic operations, transit service and facilities, non-motorized facilities, current safety conditions, and parking conditions.

Street System

In general, the street system surrounding the site is a combination of one-way and two-way multi-lane streets, typically with on-street parking and sidewalks. The signalized study intersections are controlled with actuated traffic signals, many of which are coordinated with adjacent signals. At unsignalized study intersections, traffic on the minor approach is controlled with stop signs. The study area street system was determined in consultation with City review staff, and extends from First Avenue North east to Fairview Avenue, and from Denny Way north to Roy Street. Detailed descriptions of the characteristics of streets that serve the traffic impact study area are contained in Appendix A.

Existing Traffic Volumes

Traffic volume data were compiled for the study area to characterize weekday traffic conditions during the AM and PM peak hours. The peak hours document traffic conditions during the hours of highest traffic volume and congestion in the site vicinity. Due to commute patterns and a number of streets in the area that are operated as one-way arterials, travel patterns differ between the AM and PM peak hours. Thus, the evaluation of these two time periods provides a complete perspective of peak hour operations within the study area. New traffic counts were conducted at all study intersections during 2005. Refer to Appendix A, Figure 3, which summarizes existing weekday AM and PM peak hour traffic volumes within the study area.

Intersection Operations

A level of service (LOS) analysis was conducted at each study intersection for the weekday

AM and PM peak hours, using the methodologies presented in the *Highway Capacity Manual*[2]. LOS values range from LOS A, indicating good operating conditions with little or no delay, to LOS F, indicating extreme congestion and long vehicle delays. A more detailed explanation of LOS criteria is provided in Appendix A. Table 3.1-1 summarizes the existing AM and PM peak hour LOS at each study intersection. During the AM peak hour, all study intersections operate at LOS D or better, with the exception of the Fairview Avenue/Mercer Street intersection, which currently operates at LOS F. During the PM peak hour, all study intersections operate at LOS D or better with the exceptions of the Dexter Avenue/Mercer Street, Fairview Avenue/Mercer Street, Aurora Avenue/Denny Way, and Howell Street/Yale Avenue intersections which operate at LOS E.

Table 3.1-1
2005 Existing AM and PM Peak Hour LOS Summary

		AM Peak Hour			PM Peak Hour		
#	Intersection	LOS[1]	Delay[2]	V/C[3] or WM[4]	LOS	Delay	V/C or WM
1	5th Ave/Roy St	C	25.9	0.49	B	18.6	0.64
2	9th Ave/Broad St	D	36.1	0.95	C	28.5	0.87
3	Westlake Ave/Valley St	B	11.2	0.51	B	17.4	0.94
4	Fairview Ave/Valley St	C	29.1	0.76	C	26.1	0.70
5	1st Ave/Mercer St	B	13.5	0.45	B	17.9	0.60
6	5th Ave/Mercer St	D	39.4	0.42	C	21.2	0.59
7	Dexter Ave/Mercer St	D	41.9	0.74	E	59.6	0.93
8	9th Ave/Mercer St	B	19.7	0.71	C	33.3	0.72
9	Westlake Ave/Mercer St	A	8.1	0.62	B	19.8	0.75
10	Fairview Ave/Mercer St	F	87.3	1.07	E	68.9	1.14
11	5th Ave/Republican St	A	8.8	0.16	A	3.7	0.30
12	5th Ave/Harrison St	C	33.2	0.29	B	19.8	0.48
13	Broad St/Harrison St*	C	17.9	EB	C	17.3	EB
14	5th Ave/Broad St	D	44.2	0.52	C	21.8	0.53
15	1st Ave/Denny Way	B	12.2	0.75	B	14.0	0.71
16	Broad St/Denny Way	B	18.0	0.66	B	20.4	0.60
17	5th Ave/Denny Way	B	13.3	0.53	B	15.6	0.56
18	Aurora Ave/Denny Way	C	27.8	0.75	E	64.4	0.83
19	Dexter Ave/Denny Way	B	14.0	0.51	B	15.1	0.64
20	Westlake Ave/Denny Way	A	7.1	0.51	B	13.4	0.60
21	Fairview Ave/Denny Way	C	28.5	0.63	D	36.6	0.69
22	Stewart St/Denny Way	D	45.2	0.99	C	30.8	0.84
23	Stewart St/Yale Ave	A	4.5	–[5]	B	13.6	–[5]
24	Howell St/Yale Ave	D	48.1	0.91	E	68.9	1.09

1. Level of service, based on 2000 HCM methodology.
2. Average delay per vehicle, in seconds.
3. V/C = Volume-to-capacity ratio for signalized intersections.
4. WM = worst movement or approach for unsignalized intersections.
5. Intersection runs on controller at Stewart/Denny; resulting v/c ratio not applicable to this intersection.

* Unsignalized intersection.

[2] Transportation Research Board, 2000.

Traffic Safety

An analysis of historical accident data was conducted at the study intersections, as well as the roadway segments near the project site. Data were obtained from the City of Seattle for the full three years between January 2002 and December 2004, the most recent time period for which data were available. A summary of the total number and average annual accidents at each study intersection and roadway segment is provided in Appendix A.

Based on the historical accident data, three study intersections meet the City's criteria for a High Accident Location, defined as signalized intersections exceeding an average of 10 occurrences annually. The intersections of Fifth Avenue/Mercer Street had an average accident rate of 11.0 per year; Ninth Avenue/Mercer Street and Westlake Avenue/Denny Way both had an average accident rate of 10.7 per year.

Transit Service

King County Metro operates bus routes close to the project site. Sound Transit's Regional Express bus service does not currently serve the area. The majority of existing routes operate during the weekday AM and PM peak, midday, and evening periods, as well as on weekends. Service headways range from 10 to 60 minutes during the weekday peak hours, and 10 to 120 minutes during the weekday off-peak periods and on weekends. The existing transit service provides local access to the majority of the neighborhoods in the City of Seattle, and regional access to many cities within Puget Sound.

A number of transit stops are located within close proximity of the site. The nearest stops are located north and south of the site on Fifth Avenue North and along Aurora Avenue North. These stops serve Routes 3N, 4N, 5, 16, 26, 28, 82, and 358, providing service to Downtown Seattle, Rainier Beach, University District, Northgate, Lake City, Shoreline, White Center and other local and regional locations. From these stops, transit service can be taken to destinations throughout the region. South of the site on Broad St., Routes 3S, 4S, and 74 are served by a westbound stop near Fifth Avenue North.

The Seattle Center Monorail, the nation's first full-scale commercial monorail system, provides additional transit service adjacent to the project site.[3] Service is provided along an approximately one mile long route, connecting the Seattle Center with Westlake Center Mall, at Fifth Avenue/Pine Street, to the south. Typically daily service is provided with a single train traveling between the stations. Service is provided from 7:30 a.m. to 11:00 p.m. on weekdays, and from 9:00 am to 11:00 pm on weekends. The Monorail departs every 10 minutes from each station, with each trip taking approximately two minutes to complete. Each train can carry up to 450 passengers per trip. The Monorail provides two-train service during special events and activities, with departures every five minutes or less.

Non-Motorized Facilities

Walking and biking are important elements of the transportation system adjacent to the project site, especially as they relate to mode choice and the effort to reduce vehicular travel, and due

[3] During late 2005 and early 2006, the Monorail has been temporarily out of service pending repairs. It is expected that the Monorail will be repaired in back in service by Fall of 2006.

to the proximity to the Seattle Center.

Seattle Center is home to numerous venues, including Pacific Science Center, EMP, and Key Arena. Entertainment is provided year-round, with an annual attendance of more than 10 million visitors to the community festivals, sporting events, concerts, cultural programs, theater performances, conventions and trade shows, and other events. Events range in size from small groups holding meetings and private parties to large events such as Sonics games, music events at Key Arena, and summer festivals. Typically, events are scheduled on the weekends or evenings, with some occurring concurrently. However, at times when the Sonics are playing, or during the weekend festivals, the use of the other facilities may be limited. The Sonics schedule typically includes approximately 45 home games between October and April. Combined with other major events at Key Arena (music concerts, and other sporting events), and at other venues in Seattle Center, this equates to approximately two major events per week, but may result in as many as four during a single week depending on schedule. Attendance at Sonics games averages 15,000, with a maximum capacity of 17,000. In addition, large Center-wide festivals occur several times during the summer, typically during holiday weekends. These events occur over several days and utilize the entire Center rather than individual facilities, and include Bumbershoot, Folklife, Bite of Seattle and others. Attendance at these festivals reaches over 100,000 spread out over several days.

The Seattle Center is located to the west of Fifth Avenue North. Fifth Avenue North separates the Seattle Center from the approximately 1,217 stall Seattle Center surface parking lot located to the east of Fifth Avenue North. Due to the parking lot location, pedestrian crossings of Fifth Avenue North between Harrison Street and Mercer Street are higher than at other locations along the Fifth Avenue corridor. This is especially true at times before and after events at Key Arena which have a specific start and end time, and during the summer weekend festivals which tend to generate continuous pedestrian traffic throughout the day. The following describes the existing pedestrian and bicycle facilities in the immediate area of the project site.

Pedestrian Facilities

Pedestrian facilities consist primarily of 5- to 8-foot-wide sidewalks along both sides of the streets within the study area. Each of the signalized study intersections includes pedestrian crosswalks, push buttons, and signal heads to facilitate pedestrian travel.

Bicycle Facilities

Based on the *Seattle Bicycling Guide Map* (published by SDOT) there are dedicated bicycle lanes along Dexter Avenue North. With the exception of Dexter Avenue North, bicyclists typically use the vehicle travel lanes for travel in this area.

Parking

Parking Supply

The project site currently includes approximately 1,217 spaces in the surface parking lot serving the Seattle Center and Seattle Sonics practice facility. Approximately eight on-street parallel parking stalls are available on the south side of Harrison Street between Fifth Avenue North and Broad Street; these are generally used by nearby businesses.

The Seattle Center has the following parking requirements:

Table 3.1-2
Seattle Center Stall Requirements by Facility

Facility	Parking Requirement	Facility	Parking Requirement
Mercer Arena	33	Fun Forest Restaurant	6
New Seattle Center Pavilion	163	Fun Forest Shop	2
ATM Kiosks		Fun Forest Pavilion	35
Bagley Wright Theater	107	Fun Forest Game Line	9
Bagley Wright – Second Stage	46	Fun Forest Gift Shop	3
Bagley Wright Poncho Forum	17	KCTS Studios	30
Blue Spruce Building	9	Monorail Offices	4
Center House Armory		Northwest Rooms	307
– sub-basement	3	Northwest Craft Center	4
– basement	12	McCaw Hall	369
– First Floor office/retail	12	McCaw Hall Lecture Hall	40
–Children's Museum	88	New Central Plant	5
–Group Theater	41	Seattle Center Shops	9
–Food Court Level	269	Intiman Playhouse	53
–Balcony Level	26	Pottery Northwest	3
–Conference Center	0	Seattle Children's Theater	140
– Fourth Floor	46	Sonics Practice Facility	64
New Seattle Center Coliseum	1719	Space Needle 100 Level	13
Experience Music Project	200	Warehouse	18
EMP New Exhibit Space	84	Westcourt Building	11
Exhibition Hall	400	Center House Restaurant Dining Terrace	5
Phelps Center	32.5	Fisher Pavilion	147
		Subtotal	**4581**
		New Fifth Avenue Garage[4]	
		Parking Office	5
		Customer Service Center	30
		TOTAL STALLS REQUIRED	**4616**
		Title 23 Coop. Parking Reduction (20%)	-923
		Subtotal	3693
		Title 23 Transit Reduction (20%)	-739
		TOTAL TITLE 23 REQUIRED PARKING	**2954**

[4] Seattle Center parking stall requirements as shown on the Master Use Permit Application for the new Fifth Avenue Garage.

With the new Fifth Avenue Parking Garage, the Seattle Center will have the following parking supply:

Table 3.1-3
Seattle Center Parking Supply

Parking Area	Number of Spaces
Mercer Street Garage	1439
Fifth Avenue Garage	1038
First Avenue North Garage	654
New Lot #6 (west of Intiman Theater)	22
South Coliseum Lot	70
North of Bagley Wright	25
Adjacent to South Side of Opera House	2
North of Center House	2
KCTS Parking	4
Sonics Practice Facility	48
Westcourt Building (Sonics Team Shop)	10
TOTAL PARKING SUPPLY	**3314**
Total Title 23 Required Parking	2954
Surplus Code Required Parking	**360**

As shown above in Table 3.1-2, the Seattle Center has a parking requirement of 2954 spaces. With the new Fifth Avenue Garage, the Seattle Center will have a parking supply of 3314 spaces; an excess over Title 23 code required parking of 360 spaces.

Parking Demand

Use of the existing surface parking lot varies according to the demand generated by events occurring at Seattle Center. On typical weekdays, with only minor events scheduled, the parking lot is underutilized with as few at 15 percent (approximately 190 spaces) of the available stalls occupied. When this is the case, the southwest portion of the parking lot experiences 100 percent utilization, while the areas to the north and east remain unused. This can be attributed to the proximity of the southwest parking stalls to the main pedestrian access to the Seattle Center.

At times when major events are scheduled for the Seattle Center venues, the entire parking lot can achieve close to 100 percent utilization. Major weekday events typically occur during the evening, and include Seattle Supersonics home games, music concerts in Key Arena, and other events. Typically, these major weekday events occur in individual venues and are scheduled so at not to occur concurrently. Weekday evening events which would generate high parking utilization typically occur between once and twice per weekend depending on the time of year (i.e. during the NBA season), but may result in as many as four during a week depending on schedule. During 2004, parking utilization data showed that the surface parking lot achieved 100 percent utilization on two weekdays. (See Table 3.1-4). Weekday evening events typically have a scheduled start and end time resulting in the majority of vehicles entering the parking lot during a short time period in advance of the event, and leaving the parking lot during the period immediately following the end of the event.

Major weekend events occur several time during the summer, typically during holiday weekends. These events occur over several days and utilize the entire Center rather than individual facilities, and include Bumbershoot, Folklife, Bite of Seattle and others. During 2004, parking utilization data showed that the surface parking lot achieved 100 percent utilization during 15 weekend days. Weekend events, which occur throughout the day, have higher daily attendances, although typically experience less pronounced peaks in arrivals or departures.

Table 3.1-4 provides a summary of the utilization of the existing Fifth Avenue North surface parking lots for November 17, 2003 through December 2, 2004. The data for this lot and other Seattle Center parking facilities are included as Appendix B.

Table 3.1-4
Fifth Avenue North Surface Lot Parking Utilization

		Number of Times of Occurrence by Weekend, Evenings or Weekdays			Weekday Usage	
Percentge Full	Total Number of Times Annually	Weekends	Weekday Evenings	Weekdays	Weekday Spaces Used	Weekday Spaces Free
100	17	15	0	2	1217	0
90 to 99	16	12	2	2	1156	61
85	8	5	3	0	0	1217
80	7	4	3	0	0	1217
75	9	3	5	1	913	304
70	3	2	1	0	0	1217
65	19	11	7	1	791	426
60	15	11	3	1	730	487
55	20	14	3	3	669	548
50	31	16	3	12	609	609
45	20	14	2	4	548	669
40	41	23	4	14	487	730
35	47	19	9	19	426	791
30	37	10	5	22	365	852
25	48	17	5	26	304	913
20	64	16	14	34	243	974
11 to 19	55	14	7	34	183	1034
10	52	8	18	26	122	1095
under 10	30	6	9	15	61	1156

In addition to Seattle Center parking, the Seattle School District owns and operates a surface parking lot on the west side of Fifth Avenue North, north of Republican Street. The Memorial Stadium lot includes 268 parking stalls. Observations made by The Transpo Group (Transpo) in 2006 on a Tuesday morning (a rainy day in March) showed that a minimum of 220 were available. Transpo's multiple observations showed that between 15 and 20 percent of the available stalls were being utilized. It is likely that at other times of the year, especially during the summer and the holiday season, that the Memorial Stadium lot would be more highly

utilized. However, even assuming that double or triple the number of spaces are utilized during a typical weekday, more than 100 stalls would be available in the Memorial Stadium lot.

3.1.2 Impacts of the 2010 Initial Phase Project Alternatives

This section describes the expected traffic and parking conditions within the study area for each of the project alternatives. The impacts associated with the initial phase project alternatives are evaluated for a horizon year of 2010 with a first phase development of approximately 420,000 square feet.

Alternative 1 Initial Phase (No Action)

This section describes expected traffic and parking conditions within the study area if no new development were to occur on the project site. The *Alternative 1 (No Action)* initial phase assumes that the existing land uses; structures, parking, and driveways would remain and provides a baseline for comparing each of the development alternatives. The traffic, circulation, and parking analysis for the *Alternative 1 (No Action)* initial phase was conducted for AM and PM peak hour conditions in the year 2010, consistent with the year of potential build-out of the *Alternatives 2, 3, and 4* initial phase.

Planned Improvements

Planned transportation improvements within the study area are categorized into Roadway, Transit and Rail, and Non-Motorized Improvements.

South Lake Union Transportation Plan

The City of Seattle has developed a plan for improving transportation of all modes in South Lake Union. The plan is based on the South Lake Union Transportation Study. The plan was conceived with broad support from a diverse group of neighborhood, business and community representatives. The goals of the plan are to reconnect a growing neighborhood to the City, untangle streets that create barriers in the middle of Seattle, improve mobility for people in Queen Anne, Capitol Hill, Eastlake and surrounding neighborhoods that use this corridor, promote transit, walking, and biking, and enhance a smooth flow of freight and people through the corridor. Specific plan elements are described in more detail in Appendix A. Specific details are still under review and refinement by the City. The plan was developed with an understanding of the difference between existing deficiency and deficiency attributable to growth, both from within and outside the boundaries of the South Lake Union study area. The City has required developments both inside and outside the South Lake Union boundary to contribute to funding the plan based on the calculated pro-rata traffic impacts of the proposed project development.

Roadway Improvements

The City of Seattle *2005–2010 Adopted Capital Investment Program* (CIP) was reviewed to identify transportation improvement projects planned for the study area. The following projects were identified from the CIP list:

- **Mercer Corridor Project.** The City's CIP identifies this project to improve transportation facilities in the South Lake Union Mercer Corridor. The project's EIS is

currently evaluating several options, including widening Mercer Street and converting it to two-way operations.

- **South Lake Union Streetcar**. This project, which is expected to be operational by late 2007, includes construction of a modern streetcar line between Downtown Seattle, South Lake Union Park and Fred Hutchison, circulating on Westlake and Terry Avenues.

Rail and Transit Improvements

The Downtown Seattle Transit Tunnel is being converted from use by buses to also accommodate light rail as part of the Sound Transit system. Construction of rail lines in the tunnel required closure of the Transit Tunnel in September 2005 for a period of approximately two years. The tunnel is anticipated to reopen to bus service during Fall 2007, with light rail service in the tunnel anticipated to begin during 2009.

Non-Motorized Improvements

No non-motorized facility improvements are currently identified in the City's CIP,

Developer Improvements

In addition to the transportation projects identified above, improvements identified to mitigate the impacts of the planned development projects identified in the following section were included in the analysis of the *Alternative 1 (No Action)* initial phase. Three intersection improvement projects have been identified, one proposed to mitigate impacts of the proposed UW Medicine project, the second as part of the proposed 2201 Westlake development, and the third as part of the proposed Seattle Center garage.

The improvement proposed for the UW Medicine project would remove parking from the eastbound approach to the intersection of Westlake Avenue/Republican Street to provide a separate left-turn lane. The improvement proposed for 2201 Westlake would prohibit the northbound left-turn movement at the Westlake Avenue/Denny Way intersection. The improvement proposed for the Seattle Center garage would implement east/west split phasing at the Fifth Avenue/Harrison Street intersection, while prohibiting westbound right-turns on red, and providing east/west pedestrian connectivity across the north leg during the eastbound vehicle phase.

Traffic Volumes

The 2010 AM and PM peak hour traffic volumes used in the analysis of the *Alternative 1 (No Action)* initial phase are comprised of existing traffic, background traffic growth, and traffic generated from specific planned developments anticipated to be occupied by the year 2010. An annually compounded growth rate of 0.5 percent was applied to existing (year 2005) peak hour volumes to account for general traffic growth in the study area projected by the year 2010. In addition, AM and PM peak hour traffic generated by planned development projects, also called "pipeline projects" were identified within the general vicinity. For this analysis, 22 pipeline projects were added to the 2010 traffic conditions. A list of the included pipeline projects is included in Appendix A. Refer to Appendix A, Figure 5, which summarizes the traffic volumes that would occur during the AM and PM peak hour periods for *Alternative 1*.

Traffic Operations

Weekday peak hour intersection levels of service (LOS) were calculated for each of the study intersections for the *Alternative 1 (No Action)* initial phase. Adjustments were made to the traffic operations analysis to reflect the proposed changes to the local street system to account for the construction of the proposed South Lake Union Streetcar project. In addition, at study intersections with actuated signals, the green times were re-optimized based on year 2010 weekday AM and PM peak hour traffic volumes. A summary of the *Alternative 1* (No Action) initial phase intersection operations are provided in Tables 3.1-7 and 3.1-8 later in this section.

2010 intersection levels of service within the study area are expected to change at a number of study intersections between Existing and 2010 *Alternative 1 (No Action)* initial phase conditions. At thirteen study intersections the LOS is expected to degrade between the Existing and *Alternative 1 (No Action)* initial phase conditions:

- Fifth Ave./Roy St. – LOS B to LOS C (PM Peak Hour)
- Ninth Ave./Mercer St. – LOS B to LOS C (AM Peak Hour)
- Westlake Ave./Mercer St. – LOS A to LOS C (AM Peak Hour), and LOS B to LOS F (PM Peak Hour)
- Broad St./Denny Way – LOS B to LOS C (AM and PM Peak Hours)
- Aurora Ave./Denny Way – LOS C to LOS D (AM Peak Hour), and LOS E to LOS F (PM Peak Hour)
- Stewart St./Denny Way – LOS D to LOS F (AM Peak Hour), and LOS C to LOS D (PM Peak Hour)
- Fairview Ave./Denny Way – LOS D to LOS E (PM Peak Hour)
- Howell St./Yale Ave. - LOS D to LOS E (AM Peak Hour), and LOS E to LOS F (PM Peak Hour)
- Westlake Ave./Valley St. – LOS B to LOS D (PM Peak Hour)
- Fairview Ave./Mercer St. – LOS E to LOS F (PM Peak Hour)
- Fifth Ave./Harrison St. – LOS B to LOS C (PM Peak Hour)
- Westlake Ave./Denny Way – LOS B to LOS C (PM Peak Hour)
- Mercer St./Fairview Ave. – LOS E to LOS F (PM Peak Hour)

Additionally, the LOS at Mercer Street/Dexter Avenue (LOS E in PM Peak Hour) and Mercer Street/Fairview Avenue (LOS F in AM Peak Hour) will continue to operate poorly.

Transit & Rail

Transit operations in the study area are not expected to change as a result of the closure of the Transit Tunnel (September 2005). This shift from tunnel to surface street operations has not changed the overall degree of transit accessibility for the site vicinity. The number of routes and the frequency of routes traveling through downtown and near the project site are expected to be similar to current conditions.

Bus service is anticipated to return to the Transit Tunnel during Fall 2007 with light rail service in the tunnel anticipated to begin during 2009. In addition, while bus transit headways are expected to be increased, overall transit service headways are expected to be reduced through

downtown since rail service will attract a portion of transit ridership.

It is not anticipated that any changes are likely to be made to the existing Seattle Center Monorail which would result in operations being significantly different that those documented above for existing conditions. As stated in the *Planned Improvements* portion of this section, the South Lake Union Streetcar is anticipated to be complete by late 2007, and would improve transit connectivity through the study area. This is anticipated to increase transit travel within the study area compared to 2005 existing levels.

Non-Motorized Facilities

As stated in the *Planned Improvements* portion of this section, no changes to the non-motorized facilities within the study area are anticipated by 2010. While non-motorized travel is anticipated to increase within the study area compared to 2005 existing levels, existing non-motorized facilities are anticipated to accommodate anticipated growth.

Safety

There would be an increase in the potential for traffic accidents at the study intersections proportionate to the increase in traffic due to background and pipeline traffic growth that would occur by 2010. Therefore, it is possible that the proportionate increase in traffic at the intersections of Fifth Avenue/Mercer Street, Ninth Avenue/Mercer Street, and Westlake Avenue/Denny Way may impact the existing the already high accident frequency at these locations.

Parking

With *Alternative 1 (No Action)*, parking supply in the project vicinity and on the project site would increase relative to the existing conditions documented in the *Affected Environment* portion of this section. No changes to on-street parking supply are identified by SDOT in the site vicinity. The *Alternative 1 (No Action)* initial phase would maintain current on-site parking supply for the existing uses. In addition, the proposed 1,038 stall Seattle Center Parking Garage is anticipated to be complete by 2010.

Alternative 2 Initial Phase

This section documents traffic conditions within the study area if development were to occur according to the initial phase of *Alternative 2*.

Street System

The planned transportation improvements described above for *Alternative 1 (No Action)* would occur. No off-site modifications to street channelization or intersection control are proposed as part of *Alternative 2* initial phase. Development associated with *Alternative 2* initial phase would improve existing sidewalks on the site frontage along Mercer Street, Harrison Street and Fifth Avenue North.

Traffic Generation

Site-generated traffic volumes were developed using techniques accepted for other Seattle area traffic analyses, and reviewed in advance by City staff. They are described in detail in

Appendix A, but include the primary steps of determining: how many trips will be generated; what travel modes will be used; where the traffic will come from and where will it go upon leaving the project site; and which routes will be used.

The following baseline mode-split values represent unmitigated values prior to implementation of a Transportation Management Program (TMP):

Table 3.1-5
Unmitigated Mode-Split Values

Travel Mode	Percentage
Transit/Bike/Walk	10%
Carpool/Vanpool	10%
Single-Occupancy Vehicle	80%

As shown in Table 3.1-6, the *Alternative 2* initial phase would generate approximately 3,635 daily trips, and between 640 and 680 peak hour trips.

Table 3.1-6
2010 Initial Phase Net New Trip Generation – Alternative 2

Time Period	Daily	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Initial Phase Alternative 2	3,635	635	45	680	65	575	640

Traffic Distribution and Assignment

Traffic associated with the *Alternative 2* initial phase is expected to distribute to the surrounding local and regional facilities according to distribution data from SDOT and PSRC transportation models (Figures 3-1 and 3-2). The assigned project trips for each block are illustrated in Figure 8 of Appendix A.

Traffic Volume Impacts

Peak hour traffic volumes for the *Alternative 2* initial phase were developed by adding the project-generated trips to the *Alternative 1 (No Action)* initial phase peak hour traffic volumes at the study intersections. The resulting 2010 traffic volumes for the *Alternative 2* initial phase are illustrated in Figure 9, and Tables 8 and 9 of Appendix A. These volumes were then compared with the *Alternative 1 (No Action)* initial phase traffic volumes.

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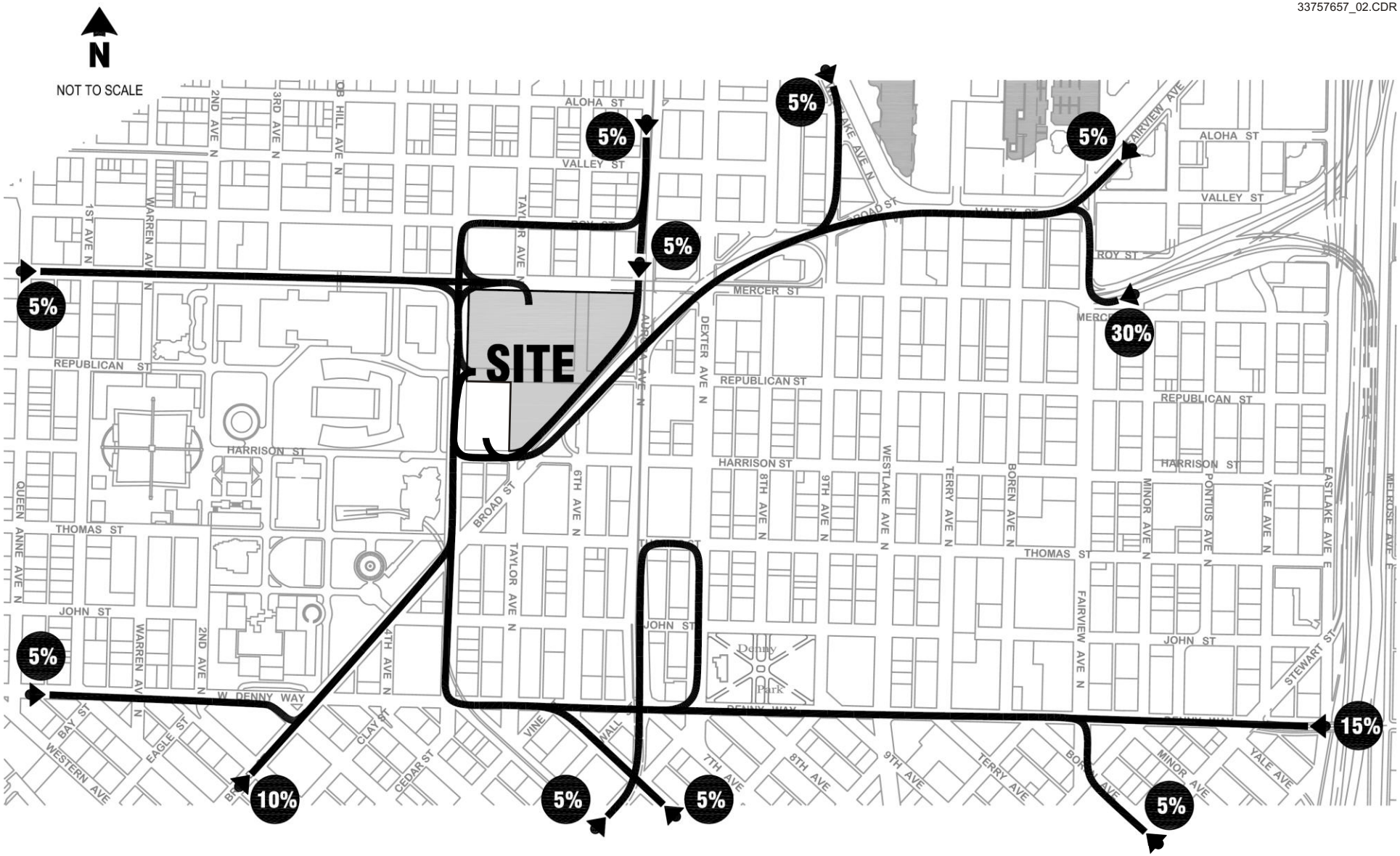

Figure 3-1

Inbound Project Trip Distribution

SOURCE: The Transpo Group

500 Fifth Avenue North

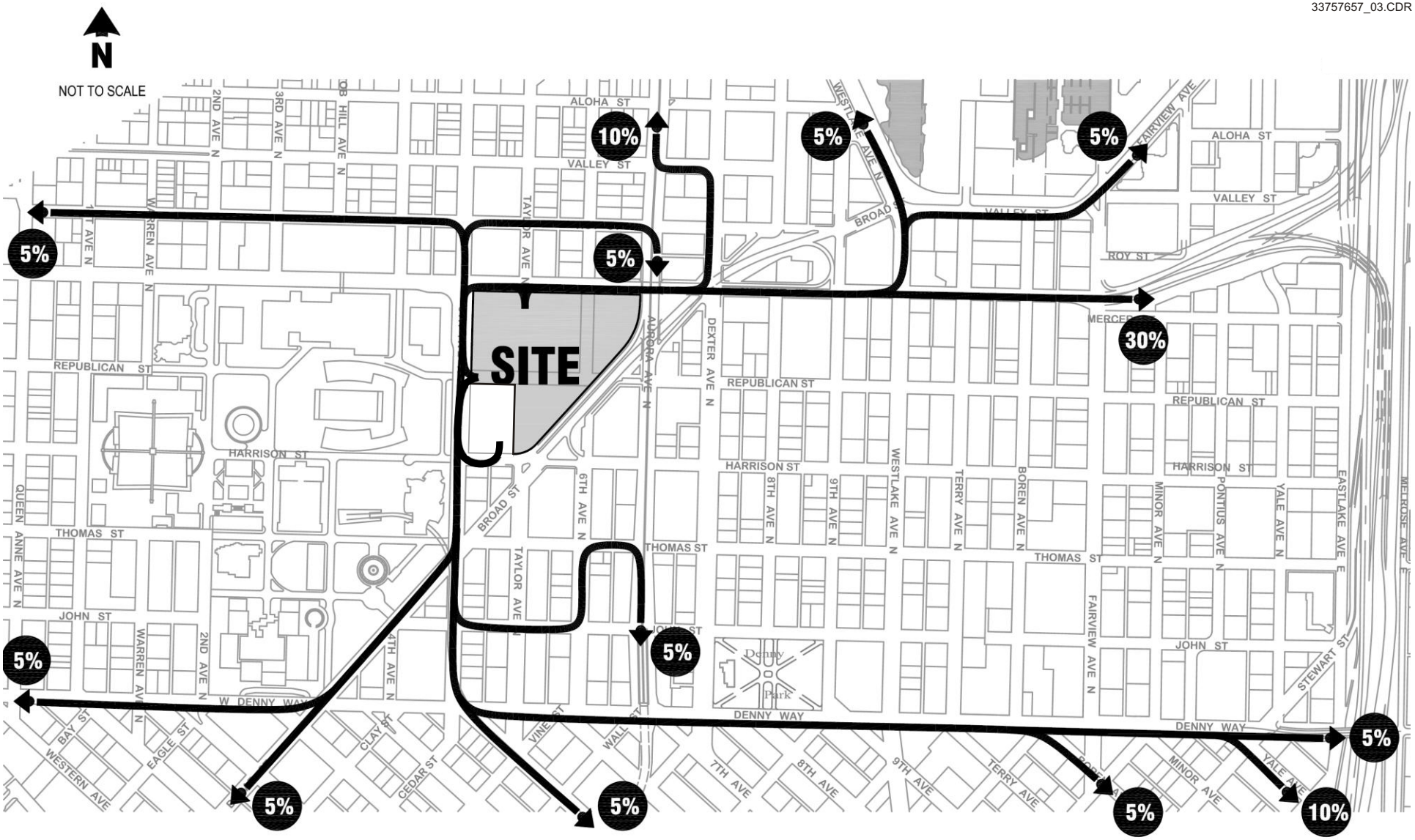

Figure 3-2
Outbound Project Trip Distribution

SOURCE: The Transpo Group

Beyond the immediate study area, traffic generated by the *Alternative 2* initial phase would account for less than ten percent of the total entering traffic during the AM and PM peak hours. The portion of the study area bounded by Fifth Avenue North, Harrison Street, and Mercer Street would experience the greatest proportional increase in traffic volumes, ranging from approximately 4 to 25 percent. This is due to their close proximity to the project sites.

During the weekday AM peak hour, the proportional increase in traffic volumes at the most congested intersections range from 0.2 percent (4 trips) at the Howell Street/Yale Avenue intersection, to 4.3 percent (168 trips) at the intersection of Aurora Avenue/Denny Way. During the weekday PM peak hour, the proportional increase at the most congested intersections would be fewer than 5 percent with one exception: the intersection of Dexter Avenue/Mercer Street would increase by 7.4 percent (287 trips).

Traffic Operations Impacts

Traffic operations impacts include the consideration of changes in operations of study area intersections, as well as at the proposed site access at the points where it interfaces with abutting streets. This section also evaluates area-wide concurrency based on the City's screenline analysis.

Intersection Level of Service

Tables 3.1-7 and 3.1-8 provide a summary of the *Alternative 2* initial phase weekday AM and PM peak hour levels of service, respectively, for each block. For purposes of comparison, *Alternative 1* (No Action) initial phase levels of service are also provided.

Five of the signalized study intersections would continue to operate at LOS F without or with the *Alternative 2* initial phase, including Westlake Avenue/Mercer Street during the PM peak hour, Fairview Avenue/Mercer Street during both the AM and PM peak hours, Aurora Avenue/Denny Way during the PM peak hour, Stewart Street/Denny Way during the AM peak hour, and Howell Street/Yale Avenue during the PM peak hour. Project impacts to these locations are summarized below in terms of traffic volume impacts. When an intersection reaches LOS F, vehicle delay calculations are sensitive and may not provide a reliable measure of project impacts. Howell Street/Yale Avenue in the AM peak hour, Dexter Avenue/Mercer Street in the PM peak hour, and Fairview Avenue/Denny Way in the PM peak all would operate at LOS E with or without the project.

In addition, several locations are anticipated to degrade as a result of the addition of project traffic. They include:

- Ninth Ave./Broad St. - LOS C to LOS D (AM Peak Hour)
- Westlake Ave./Valley St. - LOS C to LOS D (AM Peak Hour), and LOS D to LOS E (PM Peak Hour)
- Fairview Ave./Valley St. - LOS C to LOS D (AM Peak Hour)
- Fifth Ave./Republican St. – LOS A to LOS B (PM Peak Hour)
- Fifth Ave./Denny Way – LOS B to LOS C (PM Peak Hour)
- Aurora Ave./Denny Way - LOS D to LOS E (AM Peak Hour)
- Fairview Ave./Denny Way - LOS C to LOS D (AM Peak Hour)

- Stewart St./Denny Way – LOS D to LOS E (PM Peak Hour)

The intersection of Fifth Avenue/Broad Street is anticipated to improve from LOS C to LOS B in the PM peak hour.

The remaining study intersections would operate at the same level of service as with the *Alternative 1 (No Action)* initial phase during the PM peak hour.

Table 3.1-7
2010 Initial Phase AM Peak Hour LOS Summary – Alternative 2

		Alternative 1 (No Action)			Alternative 2		
#	Intersection	LOS[1]	Delay[2]	V/C or WM[3]	LOS	Delay	V/C or WM
1	5th Ave/Roy St	C	26.5	0.51	C	27.1	0.53
2	9th Ave/Broad St	C	28.2	0.95	D	44.0	1.03
3	Westlake Ave/Valley St	C	23.7	0.88	D	41.8	0.95
4	Fairview Ave/Valley St	C	33.3	0.86	D	35.6	0.91
5	1st Ave/Mercer St	B	14.2	0.50	B	14.4	0.51
6	5th Ave/Mercer St	D	43.5	0.45	D	44,8	0.46
7	Dexter Ave/Mercer St	D	44.2	0.82	D	44,8	0.82
8	9th Ave/Mercer St	C	27.5	0.76	C	27.5	0.77
9	Westlake Ave/Mercer St	C	21.9	0.81	C	22.9	0.81
10	Fairview Ave/Mercer St	F	>120.0	1.25	F	>120.0	1.34
11	5th Ave/Republican	A	9.7	0.18	A	7.5	0.28
12	5th Ave/Harrison St	C	34.2	0.36	C	31.4	0.46
13	Broad St/Harrison St*	C	19.0	EB	C	22.0	EB
14	5th Ave/Broad St	D	47.6	0.53	D	47.3	0.61
15	1st Ave/Denny Way	B	14.8	0.81	B	15.6	0.82
16	Broad St/Denny Way	C	20.4	0.76	C	20.8	0.76
17	5th Ave/Denny Way	B	13.1	0.60	B	13.7	0.61
18	Aurora Ave/Denny Way	D	45.3	0.92	E	60.1	0.96
19	Dexter Ave/Denny Way	B	15.9	0.67	B	17.1	0.69
20	Westlake Ave/Denny Way	B	14.5	0.68	B	14.6	0.68
21	Fairview Ave/Denny Way	C	34.7	0.80	D	40.5	0.85
22	Stewart St/Denny Way	F	90.7	1.14	F	97.3	1.12
23	Stewart St/Yale Ave	A	5.2	–[5]	A	5.3	–[5]
24	Howell St/Yale Ave	E	66.7	1.04	E	68.0	1.05

1. Level of service, based on 2000 HCM methodology.
2. Average delay per vehicle, in seconds.
3. V/C = Volume-to-capacity ratio for signalized intersections, WM= worst movement/approach for unsignalized intersections.
4. Based on the v/c ratio of greater than 1.20, vehicle delay at this intersection may be greater than reported in the table.
5. Intersection runs on controller at Stewart Street/Denny Way; resulting v/c ratio not applicable to this intersection.

* Unsignalized intersection

Table 3.1-8
2010 Initial Phase PM Peak Hour LOS Summary – Alternative 2

		Alternative 1 (No Action)			Alternative 2		
#	Intersection	LOS[1]	Delay[2]	V/C or WM[3]	LOS	Delay	V/C or WM
1	5th Ave/Roy St	C	20.1	0.66	C	22.7	0.69
2	9th Ave/Broad St	C	25.4	0.92	C	25.5	0.93
3	Westlake Ave/Valley St	D	50.6	1.16	E	56.8	1.18
4	Fairview Ave/Valley St	C	28.9	0.77	C	29.4	0.79
5	1st Ave/Mercer St	B	19.0	0.63	B	19.0	0.64
6	5th Ave/Mercer St	C	26.5	0.63	C	26.8	0.65
7	Dexter Ave/Mercer St	E	68.3	1.04	E	68.1	1.10
8	9th Ave/Mercer St	C	30.2	0.69	C	30.1	0.73
9	Westlake Ave/Mercer St	F	106.2	1.09	F	>120.0	1.14
10	Fairview Ave/Mercer St	F	>120.0	1.35	F	>120.0	1.39
11	5th Ave/Republican	A	3.4	0.31	B	11.0	0.49
12	5th Ave/Harrison St	C	30.2	0.58	C	30.3	0.61
13	Broad St/Harrison St*	C	18.0	EB	C	17.7	EB
14	5th Ave/Broad St	C	21.4	0.55	B	19.6	0.56
15	1st Ave/Denny Way	B	15.9	0.78	B	14.9	0.75
16	Broad St/Denny Way	C	20.6	0.71	C	21.6	0.73
17	5th Ave/Denny Way	B	16.0	0.61	C	20.7	0.69
18	Aurora Ave/Denny Way	F	>120.0	1.13	F	>120.0	1.14
19	Dexter Ave/Denny Way	B	16.3	0.80	B	17.6	0.86
20	Westlake Ave/Denny Way	C	22.0	0.85	C	23.3	0.90
21	Fairview Ave/Denny Way	E	55.3	0.90	E	56.8	0.89
22	Stewart St/Denny Way	D	53.7	1.00	E	64.1	1.03
23	Stewart St/Yale Ave	B	15.5	–[5]	B	19.8	–[5]
24	Howell St/Yale Ave	F	>120.0	1.34	F	>120.0	1.39

1. Level of service, based on 2000 HCM methodology.
2. Average delay per vehicle, in seconds.
3. V/C = Volume-to-capacity ratio for signalized intersections, WM= worst movement/approach for unsignalized intersections.
4. Based on the v/c ratio of greater than 1.20, vehicle delay at this intersection may be greater than reported in the table.
5. Intersection runs on controller at Stewart Street/Denny Way; resulting v/c ratio not applicable to this intersection.

* Unsignalized intersection

Site Access

Three points of ingress and egress would be provided for the *Alternative 2* initial phase. As described previously, access to the Seattle Center Parking Garage would be provided via the signalized intersection of Fifth Avenue/Republican Street, with a secondary access provided from Harrison Street, via a right-in/right-out only driveway. Access to the parking structure beneath the *Alternative 2* initial phase is proposed to also be provided from the signalized intersection of Fifth Avenue/Republican Street via a subterranean connection through the Seattle Center Garage. A secondary, right-in/right-out only access to the parking structure

beneath the *Alternative 2* initial phase is proposed to be provided from Mercer Street, in the vicinity of Taylor Avenue. A driveway currently exists in the vicinity of the proposed Mercer Street driveway. The existing driveway is only opened after events at Seattle Center when the surface parking lot has been heavily utilized, and provides right-turn only exit to Mercer Street. The proposed driveway, which will be open at all times, will allow right-turns to and from Mercer Street. A LOS analysis was conducted for each site access intersection for the AM and PM peak hours. The LOS analysis showed that during both the AM and PM peak hours, each driveway would operate at LOS C or better.

Transportation Concurrency

Five screenlines were chosen for review, based on their location in relationship to the project sites and estimated influence areas. A screenline is an imaginary line drawn across several arterial roadways at a particular place. Concurrency for a project is evaluated by comparing the with project volume to capacity (v/c) ratio across a screenline against the screenlines established standard. The screenlines that were analyzed for concurrency review include the Magnolia and Ship Canal Bridges and South Lake Union. All affected screenlines would continue to operate better than required by the concurrency threshold without or with the proposed project.

Transit Impacts

Existing transit service is expected to accommodate the additional demand generated by the *Alternative 2* initial phase with or without a Transportation Management Program (TMP) and, therefore, no significant adverse impacts to transit operations are expected to occur.

Non-Motorized Travel Impacts

No significant adverse impacts to non-motorized facilities or operations are expected to occur as a result of the *Alternative 2* initial phase of development.

Safety Impacts

Adding *Alternative 2* initial phase traffic volumes to study intersections and roadways would likely cause a proportionate increase in the probability of traffic accidents. The changes to the transportation system anticipated in the South Lake Union Transportation Study would result in a noticeably different environment for vehicles and pedestrians thereby enhancing safety. The degree of increased traffic is not expected to result in a significant adverse impact.

Parking Impacts

Code Requirements. The City of Seattle's Land Use Code requires a minimum of 1.0 stall per 1,000 gross square feet of administrative office space. The 420,000 square feet of office space proposed for construction in the initial phase would require 420 parking spaces. As shown in Table 3.1-3 above, the Seattle Center has 360 parking spaces in excess of Title 23 parking requirements. The code required parking for the campus will be provided by constructing approximately 204 spaces on-site underneath the initial phase buildings and by covenanted parking spaces in the adjacent Seattle Center garage, for a total of 420 spaces. The Seattle Center has agreed to covenant a total of 300 spaces in the new garage. These covenanted

spaces would meet a portion (216 spaces) of the code required parking and also meet a portion of the parking demand (see below).

On-Site and Covenanted Parking Supply. On-site parking is proposed both below the *Alternative 2* initial phase building(s), and in the proposed Seattle Center Parking Garage. A total of approximately 204 parking stalls are proposed as part of the *Alternative 2* initial phase. In addition to the approximately 204 spaces being provided on-site, the Seattle Center has agreed to provide a covenant for 246 stalls in the Seattle Center Parking Garage for exclusive daily use (up to 6:00 pm Monday through Friday). For the *Alternative 2* initial phase there would be a total parking supply of 450 parking stalls.

Parking Demand. Parking demand for the *Alternative 2* initial phase was calculated considering the size, typical employee density, daily occupancy, and travel mode split of the proposed project. This component yields a demand for long-term commuter parking. The mode-split assumptions are consistent with those identified in the travel mode split section of the *Alternative 2* initial phase trip generation analysis, which was summarized previously in Table 3.1-5. In addition, short-term parking demand required by office use is also considered and is based on rates consistent with previously accepted rates for numerous other Seattle development projects. Calculation worksheets for the parking demand analysis are provided as an attachment to Appendix A.

Peak parking demand for the *Alternative 2* initial phase would total 1,033 parking stalls. Assuming a total of 450 parking spaces for the *Alternative 2* initial phase would have an effective supply of 95 percent, or 428 spaces, the peak demand would exceed supply by 605 parking stalls in the unmitigated scenario of the *Alternative 2* initial phase[5]. A TMP, as discussed in the Mitigation section, could reduce the parking demand to 732 stalls. The calculation worksheets provided in an attachment to Appendix A illustrate the effect of the TMP goals. Therefore, with a TMP in place, parking demand associated with the *Alternative 2* initial phase would exceed the proposed parking supply by 304 spaces.

Table 3.1-9
Alternative 2 Initial Phase Parking Summary

Alternative/Phase	Proposed Parking Supply	Parking Code Regulations	Practical Parking Supply[1]	Parking Demand	Parking Surplus/ Deficit[2]
Base Mode Split Assumptions					
Alternative 2 Initial Phase	450	420	428	1,033	-605
Moderate TMP Assumptions					
Alternative 2 Initial Phase	450	420	428	942	-514
Aggressive TMP Assumptions					
Alternative 2 Initial Phase	450	420	428	732	-304

1. Assumes a 5% reduction to account for the practical capacity of the parking supply.
2. A parking deficit is indicated by a negative number, a parking surplus is shown by a positive number.

[5] The 428-space amount is based on the total 450 stalls reduced by a practical capacity factor that takes into account the efficiency lost by circulating the garage in search of a vacant stall.

The 2004 parking utilization data for Seattle Center parking facilities are included as Appendix B. As shown in the table in Appendix B, there are an adequate number of available parking spaces in nearby parking lots and garages for all except for three weekdays per year. Table 3.1-10 below provides a summary of the average weekday usage and average availability of the Mercer Street Garage, the First Avenue North Garage, and the Seattle School District's Memorial Stadium parking lot. On an average weekday, there would be over 2,000 parking spaces available in these other nearby parking facilities.

Table 3.1-10
Alternative 2 Initial Phase Additional Parking Needs Compared With Available Weekday Parking in Nearby Facilities

		Mercer Street Garage	First Avenue North Garage	Memorial Stadium Lot
Alternative 2 Additional Parking Needs[1]	**304 spaces**			
Total Parking Supply		1439	654	268
Average Weekday Usage[2]		< 176 spaces	<125 spaces	<60 spaces
Available Supply	**2052 total spaces**	1263 spaces	529 spaces	260 spaces

1. Based on the deficit of on-site and covenanted parking identified in Table 3.1-9 above.
2. Average weekday usage derived from a review of the Seattle Center parking utilization data provided for November 2003 – December 2004 included in Appendix B.

Alternative 3 Initial Phase

The development proposed to occur under the *Alternative 3* initial phase would include the same characteristics as the development identified for the *Alternative 2* initial phase. Therefore, the impacts associated with the *Alternative 3* initial phase would be consistent with those documented above for the *Alternative 2* initial phase.

Alternative 4 Initial Phase

The development proposed to occur under the *Alternative 4* initial phase would include the same characteristics as the development identified for the *Alternative 2* initial phase. It is not anticipated that the improvements planned for Mercer Street, Sixth Avenue North, or Aurora Avenue North would be complete prior to 2010. Therefore, the impacts associated with the *Alternative 4* initial phase would be consistent with those documented above for the *Alternative 2* initial phase.

3.1.3 Impacts of the 2025 Build-Out Project Alternatives

This section of the EIS describes the expected traffic and parking conditions within the study area for both of the build-out project alternatives. The impacts associated with the build-out of the project alternatives are evaluated for a horizon year of 2025.

Alternative 1 Build-Out (No Action)

This section of the EIS describes expected traffic and parking conditions within the study area if no new development were to occur on the project site. The *Alternative 1 (No Action)* build-out assumes that the existing land uses, structures, parking, and driveways would remain and provides a baseline for comparing each of the development alternatives. The traffic, circulation, and parking analysis for the *Alternative 1 (No Action)* build-out was conducted for AM and PM peak hour conditions in the year 2025, consistent with the year of the *Alternative 2*, *3*, and *4* build-out.

2025 Planned Improvements

While there is a higher likelihood that some of the improvements which were described, but not included in the initial phase analysis, would be implemented by 2025, no additional improvements were relied on as a No Action condition in this analysis. While funding mechanisms have been put in place, full funding remains uncertain, and to incorporate some or all of the improvements would be speculative.

It is noted that some of the projects identified in the South Lake Union Transportation Plan, and components of the Alaskan Way Viaduct may be partially or fully constructed by 2025. However, funding is not currently assured, thus this analysis did not rely on these improvements. The exception to this is that the analysis of the *Alternative 4* build-out assumes the improvements planned for Mercer Street and Aurora Avenue in the design of the campus.

Traffic Volumes

To enable this document to identify all the impacts associated with the *Alternative 2*, *3*, and *4* build-out, the traffic generated by the *Alternative 2* initial phase was not included in 2025 *Alternative 1* (No Action) traffic volumes. The methodology used to estimate 2025 peak hour traffic volumes for the analysis of the project build-out is consistent with that used in the analysis of the initial phase. An annually compounded growth rate of 0.5 percent was applied to existing (year 2005) peak hour volumes to account for general traffic growth in the study area projected by the year 2025. In addition, 2025 peak hour traffic volume estimates include AM and PM peak hour traffic volumes generated by planned development (pipeline) projects.

The pipeline projects remain unchanged from those included in the analysis of the initial phase. However, to account for the more distant horizon year, and to reflect that additional (currently unknown) pipeline projects would likely be constructed by 2025, the 25 percent reduction in pipeline project traffic was not taken for this analysis. The 2025 traffic forecasts are shown in Appendix A, Figure 10.

Traffic Operations

Tables 3.1-11 and 3.1-12 summarize 2025 LOS with *Alternative 1*. The following list summarizes the four study intersections that would continue to operate poorly under the 2025 *Alternative 1* (No Action) and the seven study intersections where the LOS is expected to degrade to LOS E or F between existing conditions and the 2025 *Alternative 1 (No Action)*. They include:

- Westlake Ave./Valley St. - LOS B to LOS F (PM peak hour)
- Dexter Ave./Mercer St. - LOS E to LOS F (PM peak hour)
- Westlake Ave./Mercer St. - LOS B to LOS F (PM peak hour)
- Fairview Ave./Mercer St. - LOS F to LOS F (AM peak hour), and LOS E to LOS F (PM peak hour)
- Fifth Ave./Broad St. - LOS D to LOS E (AM peak hour)
- Aurora Ave./Denny Way - LOS C to LOS F (AM peak hour), and LOS E to LOS F (PM peak hour)
- Fairview Ave./Denny Way - LOS D to LOS E (PM peak hour)
- Stewart Ave./Denny Way - LOS D to LOS F (AM peak hour), and LOS C to LOS F (PM peak hour)
- Howell St./Yale Ave. - LOS D to LOS F (AM peak hour), and LOS E to LOS F (PM peak hour)

Appendix A provides additional information regarding the basis for the operational conditions summarized above.

Transit & Rail

By the year 2025, it is anticipated that the Transit Tunnel will have been reopened following the completion of construction to accommodate new track construction for Light Rail. Therefore, transit that was re-routed to surface streets during the closure will have returned to the tunnel. In addition, bus transit headways are expected to increase while overall transit service headways are expected to be reduced through downtown, since rail service will attract a portion of transit ridership. The number of routes and the frequency of routes traveling through downtown and near the project site are assumed to be similar to current conditions. It is not anticipated that any changes are likely to be made to the existing Seattle Center Monorail which would result in operations being significantly different that those documented above for existing conditions. As stated previously in the planned improvements section for the initial phase, the South Lake Union Streetcar is anticipated to be complete by 2007, and would improve transit connectivity through the study area. This is anticipated to increase transit travel within the study area compared to 2005 existing levels. No significant adverse impact to transit or rail travel is anticipated under *Alternative 1*.

Non-Motorized Facilities

As stated in the *Planned Improvements* portion of this section, no changes to the non-motorized facilities within the study area are anticipated by 2025. While non-motorized travel is anticipated to increase within the study area compared to 2005 existing levels, existing non-motorized facilities are anticipated to accommodate anticipated growth.

Safety

Impacts would be similar to those described for *Alternative 1* as a result of the initial phase of development.

Parking

With *Alternative 1 (No Action)*, parking supply in the project vicinity and on the project site is expected to increase relative to the existing conditions documented in the *Affected Environment* section above. No changes to on-street parking supply are identified by SDOT in the site vicinity. The *Alternative 1 (No Action)* would maintain current on-site parking supply for the existing uses. An additional 1,038 parking stalls would be available in the proposed Seattle Center Parking Garage which is anticipated to be complete prior to 2025.

Alternatives 2 and 3 Build-Out

This section documents traffic conditions within the study area in 2025 with build-out development according to either *Alternative 2* or *Alternative 3*. While the land use quantities and thus impacts are different, the differences are not substantial and will result in similar impacts, and are thus described together, where appropriate.

Street System

No off-site modifications to street channelization or intersection control are proposed as part of either the *Alternative 2* or *Alternative 3* build-out. Development associated with both the *Alternative 2* build-out and the *Alternative 3* build-out would improve existing sidewalks on the site frontage along Mercer Street, Harrison Street and Fifth Avenue North.

Traffic Generation

Trip generation estimates for build-out were developed using the same methodology used to estimate trip generation for the initial phase, with the exception of the mode split assumptions. For build-out it was assumed that a TMP would be in place, and result in 30 percent transit/bike/walk, 20 percent carpool, and 50 percent single occupant vehicle.

Table 3.1-11 summarizes the trip generation for each alternative. Average weekday traffic would range from about 5,100 to 5,600 vehicles for *Alternative 3* and *Alternative 2* respectively. Peak hour traffic would range from about 900 to 1,100 vehicles per hour, depending on the alternative of time period.

Table 3.1-11
2025 Build-Out – Net New Trip Generation

Time Period	Daily	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Alternative 2 Build-Out	5,625	975	75	1050	100	885	985
Alternative 3 Build-Out	5,060	880	65	945	90	795	885

Distribution and Assignment

Traffic associated with both the *Alternative 2* build-out and the *Alternative 3* build-out is expected to distribute to surrounding local and regional roadways based on the same percentages outlined in Table 7 of Appendix A and illustrated in Figures 3-1 and 3-2 for the initial phase. The resulting AM and PM peak hour assignments of project-generated traffic are illustrated in Figures 11 and 12 of Appendix A for the *Alternative 2* build-out and the *Alternative 3* build-out respectively.

Traffic Volume Impacts

The understanding of the proportional effect of project traffic is described in detail in Appendix A, and illustrated in Appendix A, Figures 13 and 14, and in Tables 18 and 19. As described in relation to impacts under the initial phase of development, impacts would be concentrated near the site, and diffuse with progressive distance from the site. Overall percentages would be higher, as described in Appendix A.

Traffic Operations Impacts

Intersection Level of Service

Tables 3.1-12 and 3.1-13 provide a summary of the build-out project alternatives' weekday AM and PM peak hour levels of service, respectively, for each intersection. For purposes of comparison, *Alternative 1 (No Action)* levels of service are also provided.

Seven of the signalized study intersections will continue to operate at LOS F with or without the *Alternative 2* build-out or *Alternative 3* build-out. Project impacts to these locations are summarized below. When an intersection reaches LOS F, vehicle delay calculations are sensitive and may not provide a reliable measure of project impacts.

During the AM and PM peak hours, the addition of traffic generated by the *Alternative 2* build-out would cause the level of service at the following intersections to degrade:

- Fifth Ave./Roy St. - LOS C to LOS D (PM Peak Hour)
- Ninth Ave./Broad St - LOS D to LOS F (AM Peak Hour), and LOS C to LOS D (PM Peak Hour)
- Westlake Ave./Valley St. - LOS D to LOS F (AM Peak Hour)
- Fairview Ave./Valley St. - LOS D to LOS E (AM Peak Hour)
- Fifth Ave./Republican St. - LOS A to LOS B (PM Peak Hour)
- Broad St./Harrison St. - LOS C to LOS D (AM Peak Hour)
- First Ave./Denny Way - LOS B to LOS C (PM Peak Hour)
- Dexter Ave./Denny Way - LOS B to LOS C (AM Peak Hour), and LOS C to LOS D (PM Peak Hour)
- Westlake Ave./Denny Way - LOS C to LOS D (PM Peak Hour)
- Fairview Ave./Denny Way - LOS D to LOS E (AM Peak Hour), and LOS E to LOS F (PM Peak Hour)

The addition of project traffic generated by the *Alternative 3* build-out would result in similar changes in intersection operations as the *Alternative 2* build-out during the AM and PM peak hours, with the following exceptions:

- Fifth Ave./Roy St. - LOS C to LOS C (PM Peak Hour)
- Ninth Ave./Broad St. - LOS D to LOS E (AM Peak Hour)
- Westlake Ave./Valley St. - LOS D to LOS E (AM Peak Hour)
- First Ave./Denny Way - LOS B to LOS B (PM Peak Hour)
- Fifth Ave./Republican St. – LOS A to LOS A (PM Peak Hour)

Table 3.1-12
2025 Build-Out AM Peak Hour LOS Summary

		Alternative 1 (No Action)			Alternative 2			Alternative 3		
#	Intersection	LOS[1]	Delay[2]	V/C or WM[3]	LOS	Delay	V/C or WM	LOS	Delay	V/C or WM
1	5th Ave/Roy St	C	28.0	0.55	C	28.9	0.59	C	28.8	0.59
2	9th Ave/Broad St	D	42.3	1.02	F	82.1	1.15	E	77.9	1.14
3	Westlake Ave/Valley St	D	35.2	1.11	F	81.0	1.15	E	70.9	1.17
4	Fairview Ave/Valley St	D	39.9	0.95	E	65.0	1.03	E	62.1	1.02
5	1st Ave/Mercer St	B	15.1	0.56	B	15.6	0.57	B	15.5	0.57
6	5th Ave/Mercer St	D	46.0	0.49	D	38.9	0.51	D	39.8	0.51
7	Dexter Ave/Mercer St	D	50.1	0.90	D	51.8	0.91	D	51.7	0.90
8	9th Ave/Mercer St	D	39.2	0.84	D	39.0	0.84	D	39.1	0.84
9	Westlake Ave/Mercer St	C	26.8	0.90	C	26.7	0.90	C	27.3	0.90
10	Fairview Ave/Mercer St	F	>120.0	1.40	F	>120.0	1.52	F	>120.0	1.51
11	5th Ave/Republican	A	9.9	0.20	A	7.1	0.34	A	6.9	0.33
12	5th Ave/Harrison St	C	34.1	0.37	C	30.5	0.55	C	30.7	0.54
13	Broad St/Harrison St*	C	20.9	EB	D	27.5	EB	D	26.7	EB
14	5th Ave/Broad St	E	57.6	0.58	E	55.9	0.72	E	56.0	0.70
15	1st Ave/Denny Way	C	23.2	0.88	C	26.6	0.90	C	26.4	0.89
16	Broad St/Denny Way	C	25.3	0.85	C	26.1	0.85	C	25.9	0.85
17	5th Ave/Denny Way	B	13.9	0.68	B	15.3	0.69	B	15.4	0.67
18	Aurora Ave/Denny Way	F	80.6	1.02	F	116.2	1.09	F	112.2	1.08
19	Dexter Ave/Denny Way	B	18.1	0.81	C	20.8	0.86	C	20.5	0.86
20	Westlake Ave/Denny Way	B	18.8	0.77	B	19.1	0.81	B	19.1	0.81
21	Fairview Ave/Denny Way	D	51.1	0.91	E	75.0	0.99	E	72.5	0.98
22	Stewart St/Denny Way	F	>120.0	1.26	F	>120.0	1.27	F	>120.0	1.26
23	Stewart St/Yale Ave	A	6.1	-[5]	A	6.3	-[5]	A	6.3	-[5]
24	Howell St/Yale Ave	F	94.6	1.18	F	97.7	1.19	F	97.4	1.18

1. Level of service, based on 2000 HCM methodology.
2. Average delay per vehicle, in seconds.
3. V/C = Volume-to-capacity ratio for signalized intersections, WM= worst movement/approach for unsignalized intersections.
4. Based on the v/c ratio of greater than 1.20, vehicle delay at this intersection may be greater than reported in the table.
5. Intersection runs on controller at Stewart/Denny; resulting v/c ratio not applicable to this intersection.

* Unsignalized intersection

At the remaining study intersections, average intersection delays with the *Alternative 3* build-out would be up to approximately five seconds shorter than with the *Alternative 2* build-out. The remaining study intersections would operate at the same level of service as *Alternative 1 (No Action)* build-out during the AM and PM peak hours.

Table 3.1-13
2025 Build-Out PM Peak Hour LOS Summary

		Alternative 1 (No Action)			Alternative 2			Alternative 3		
#	Intersection	LOS[1]	Delay[2]	V/C or WM[3]	LOS	Delay	V/C or WM	LOS	Delay	V/C or WM
1	5th Ave/Roy St	C	25.4	0.72	D	35.7	0.76	C	33.1	0.76
2	9th Ave/Broad St	C	34.8	0.99	D	38.3	1.01	D	37.9	1.01
3	Westlake Ave/Valley St	F	85.6	1.28	F	98.4	1.31	F	97.3	1.31
4	Fairview Ave/Valley St	C	31.1	0.85	C	31.9	0.87	C	31.8	0.87
5	1st Ave/Mercer St	C	20.9	0.69	C	21.0	0.70	C	21.0	0.70
6	5th Ave/Mercer St	C	28.6	0.69	C	33.6	0.72	C	34.5	0.72
7	Dexter Ave/Mercer St	F	83.8	1.18	F	87.8	1.27	F	86.3	1.23
8	9th Ave/Mercer St	C	31.0	0.74	C	31.2	0.80	C	31.1	0.80
9	Westlake Ave/Mercer St	F	>120.0	1.25	F	>120.0	1.32	F	>120.0	1.31
10	Fairview Ave/Mercer St	F	>120.0	1.50	F	>120.0	1.56	F	>120.0	1.55
11	5th Ave/Republican	A	8.3	0.34	B	13.8	0.61	B	12.0	0.59
12	5th Ave/Harrison St	C	31.7	0.63	C	34.1	0.69	C	29.5	0.53
13	Broad St/Harrison St*	C	19.6	EB	C	20.0	EB	C	20.0	EB
14	5th Ave/Broad St	C	22.9	0.60	C	20.0	0.62	C	20.5	0.62
15	1st Ave/Denny Way	B	19.5	0.85	C	20.0	0.86	B	19.9	0.86
16	Broad St/Denny Way	C	22.5	0.79	C	23.4	0.83	C	23.4	0.83
17	5th Ave/Denny Way	B	17.5	0.67	B	19.1	0.71	B	18.0	0.71
18	Aurora Ave/Denny Way	F	>120.0	1.26	F	>120.0	1.27	F	>120.0	1.27
19	Dexter Ave/Denny Way	C	26.3	0.93	D	50.1	1.02	D	47.5	1.01
20	Westlake Ave/Denny Way	C	36.1	1.02	D	45.0	1.13	D	46.2	1.10
21	Fairview Ave/Denny Way	E	77.4	1.01	F	89.2	1.05	F	87.7	1.04
22	Stewart St/Denny Way	F	87.2	1.12	F	106.5	1.17	F	104.3	1.16
23	Stewart St/Yale Ave	C	21.6	–[5]	C	34.5	–[5]	C	33.0	–[5]
24	Howell St/Yale Ave	F	>120.0	1.51	F	>120.0	1.59	F	>120.0	1.59

1. Level of service, based on 2000 HCM methodology.
2. Average delay per vehicle, in seconds.
3. V/C = Volume-to-capacity ratio for signalized intersections, WM= worst movement/approach for unsignalized intersections.
4. Based on the v/c ratio of greater than 1.20, vehicle delay at this intersection may be greater than reported in the table.
5. Intersection runs on controller at Stewart/Denny; resulting v/c ratio not applicable to this intersection.

* Unsignalized intersection

Site Access

The three points of ingress and egress remain unchanged from that described for the initial phase. A LOS analysis conducted for each site access intersection showed that the site access intersections are estimated to operate at LOS C or better during both the AM and PM peak hours. The results indicate the site access intersections would provide adequate capacity for the proposed garage access locations.

Transportation Concurrency

The transportation concurrency analysis indicates that with traffic generated by either of the build-out alternatives, the screenlines would have volume to capacity (v/c) ratios that are less than the City level of service threshold and thus, the alternatives would meet concurrency requirements.

Transit Impacts

With site specific programs like a TMP or Commute Trip Reduction (CTR) in place, the transit mode split is expected to represent up to 30 percent of total person trips generated by the build-out alternatives. Under the *Alternative 2* build-out, approximately 2,870 daily transit trips would be generated by the development. Of those, approximately 535 transit trips would occur during the AM peak hour and approximately 505 transit trips during the PM peak hour. For *Alternative 3,* approximately 2,580 daily, 485 AM peak and 455 PM peak transit trip would occur.

Foundation employees would use existing transit routes and the monorail as described in relation to the initial phase. No noticeable numbers of foundation employees were assumed to use the proposed South Lake Union Streetcar due to the distance between the campus and the streetcar route, and the presence of Aurora Avenue between the two locations. Existing transit service is expected to accommodate the additional demand generated by the *Alternative 2* build-out or *Alternative 3* build-out with a TMP program and, therefore, no significant adverse impacts to transit operations are expected to occur.

Non-Motorized Travel Impacts

As part of the build-out alternatives the existing sidewalks on each project site frontage would be improved. The build-out alternatives would also provide secure bicycle storage on the project site.

Existing non-motorized facilities within the study area are expected to accommodate the portion of the *Alternative 2* build-out trip generation that is expected to walk or bike to the project site. The *Alternative 2* build-out would not degrade any existing facilities; the redevelopment would enhance those facilities directly adjacent to each site. Thus, no significant adverse impacts to non-motorized facilities or operations are expected to occur as a result of the *Alternative 2* build-out of development. The *Alternative 3* build-out is anticipated to generate fewer non-motorized trips than the *Alternative 2* build-out, due to the reduced development size. Therefore, no significant adverse impacts to non-motorized facilities or operations are expected to occur as a result of the *Alternative 3* build-out of development.

Safety Impacts

Adding *Alternative 2* build-out traffic volumes to study intersections and roadways would likely cause a proportionate increase in the probability of traffic accidents. Therefore, it is possible that the proportionate increase in traffic at the intersections of Fifth Avenue/Mercer Street, Ninth Avenue/Mercer Street, and Westlake Avenue/Denny Way may impact the existing safety hazard at these locations. The *Alternative 3* build-out traffic volumes would be similar to, though marginally less than, those associated with *Alternative 2.* Therefore the potential increase in safety hazards also would be marginally less.

Parking Impacts

Code Requirements. The City of Seattle Land Use Code requires a minimum of 1.0 stalls per 1,000 gross square feet of administrative office space. For *Alternative 2*, the requirement would be 1,000 stalls. For *Alternatives 3* and *4,* the requirement would be 900 stalls. The code required parking would be met by a combination of constructing a total of approximately 980 spaces on-site and the 300 covenanted spaces in the adjacent Fifth Avenue Parking Garage.

On-Site and Covenanted Parking Supply. On-site parking is proposed both below the *Alternative 2* build-out, and in the proposed Seattle Center Parking Garage. A total of approximately 980 parking stalls are proposed as part of the *Alternative 2* build-out. In addition to the approximately 980 spaces being provided on-site, the Seattle Center has agreed to covenant 300 stalls in the Seattle Center Parking Garage, of which 246 would be for exclusive daily use by campus employees (up to 6:00 pm Monday through Friday). For the *Alternative 2* build-out, there would be a total parking supply of 1,226 stalls.

Parking Demand. Parking demand for the build-out alternatives was calculated using the same approach as for the initial phase, with the exception that mode-split assumptions are consistent with those identified for the build-out alternatives, assuming a TMP in place. Calculation worksheets for the parking demand analysis are provided in Appendix A.

Peak parking demand for the *Alternative 2* build-out would total 1,742 parking stalls. Assuming a total of 1,226 parking spaces for the *Alternative 2* build-out have an effective supply of 95 percent, or 1,165 spaces, the peak demand would exceed supply by approximately 577 parking stalls[6]. This excess parking demand would need to be accommodated through the use of available off-site off-street parking in the vicinity of the project site.

Peak parking demand for the *Alternative 3* build-out would total 1,568 parking stalls. Assuming a total of 1,226 parking spaces for the *Alternative 3* build-out have an effective supply of 95 percent, or 1,165 spaces, the peak parking demand would exceed the available on-site parking supply by 403 spaces.

[6] The 1,165-space amount is based on the total 1,226 stalls reduced factored by a practical capacity factor that takes into account the efficiency lost by circulating the garage in search of a vacant stall.

Table 3.1-14
Build-Out Parking Summary

Alternative/Phase	Proposed Parking Supply	Parking Code Regulations	Practical Parking Supply[1]	Parking Demand	Parking Surplus/ Deficit[2]
Aggressive TMP Assumptions					
Alternative 2 Build-Out	1,226	1,000	1,165	1,742	-577
Alternative 3 Build-Out	1,226	900	1,165	1,568	-403

1. Assumes a 5% reduction to account for the practical capacity of the parking supply.
2. A parking deficit is indicated by a negative number, a parking surplus is shown by a positive number.

The 2004 parking utilization data for Seattle Center parking facilities included as Appendix B shows there are an adequate number of available parking spaces in nearby parking lots and garages for all except for three weekdays per year. Table 3.1-15 below provides a summary of the average weekday usage and average availability of the Mercer Street Garage, the First Avenue North Garage, and the Seattle School District's Memorial Stadium parking lot, and indicates there would be over 2,000 parking spaces available in these other nearby parking facilities on an average weekday.

Table 3.1-15
Alternative 2 Build-Out Additional Parking Needs Compared With Available Weekday Parking in Nearby Facilities

		Mercer Street Garage	First Avenue North Garage	Memorial Stadium Lot
Alternative 2 Additional Parking Needs[1]	**577 spaces**			
Total Parking Supply		1439	1038	268
Average Weekday Usage[2]		< 176 spaces	<125 spaces	<60 spaces
Available Supply	**2052 total spaces**	1263 spaces	529 spaces	260 spaces

1. Based on the deficit of on-site and covenanted parking identified in Table 3.1-14 above.
2. Average weekday usage derived from a review of the Seattle Center parking utilization data provided for November 2003 – December 2004 included in Appendix B.

Alternative 4 Build-Out

The development proposed to occur under the *Alternative 4* build-out would include the same characteristics as the development identified for the *Alternative 3* build-out, with the development of up to 900,000 square feet of office space spread through several buildings located in a campus setting. The difference between the *Alternative 3* build-out and the *Alternative 4* build-out is that the improvements planned for Mercer Street and Aurora Avenue North have been assumed in the design of the campus.

The Mercer Street improvements call for the conversion of Mercer Street from one-way to two-way operations, with the provision of three-travel lanes in each direction and additional turn lanes at intersections. To enable this to occur, Valley Street would be narrowed to a three-lane section with bike lanes. Left turn lanes may be provided at key intersections, as needed, such as Westlake Avenue. These changes would reduce regional traffic on Valley Street while focusing traffic to/from I-5 onto Mercer Street. Mercer Street would also be reconnected across Aurora Avenue, as would Thomas Street.

The Aurora Avenue improvements would reconfigure access to/from Aurora Avenue to the north of the Battery Street tunnel. Options for providing additional east-west connections across Aurora Avenue are being explored as part of the ongoing Alaskan Way Viaduct EIS process. Most options include the extension of Sixth Avenue through the site to facilitate local circulation and overall accessibility to Aurora Avenue.

With these improvements in place, additional access to the site could be developed along the Sixth Avenue frontage. While overall system impacts would be similar, development of the more-direct access to the east would reduce impacts along the west site frontage intersections at Fifth Avenue at Harrison, Republican and Mercer Streets. With additional dispersion of access, the pressure of the added traffic load from the project would be more immediately dispersed, with less localized impact issues. Even if site access were to remain unchanged from the *Alternative 3* build-out, the *Alternative 4* build-out transportation infrastructure would offer more "grid-based" options for access to/from and through the South Lake Union neighborhood to the east, and would likely result in better operating conditions along Fifth Avenue, abutting the site to the west. A summary of the proposed conceptual changes to the transportation system in the immediate vicinity of the project site is illustrated in Figure 3-3.

With the reconnection of Sixth Avenue, freeway-destined project traffic would still impact Mercer Street, but would also have the option of using other streets crossing Aurora Avenue before accessing Mercer Street and the freeway. This would reduce project impacts to the Mercer Street corridor.

Thus, overall traffic and operational impacts of *Alternative 4* would be similar, though less than those described for *Alternative 3*. Detailed analysis has been withheld until the Alaskan Way Viaduct project EIS is complete and more definition regarding the actual configuration of the street system and infrastructure has been provided.

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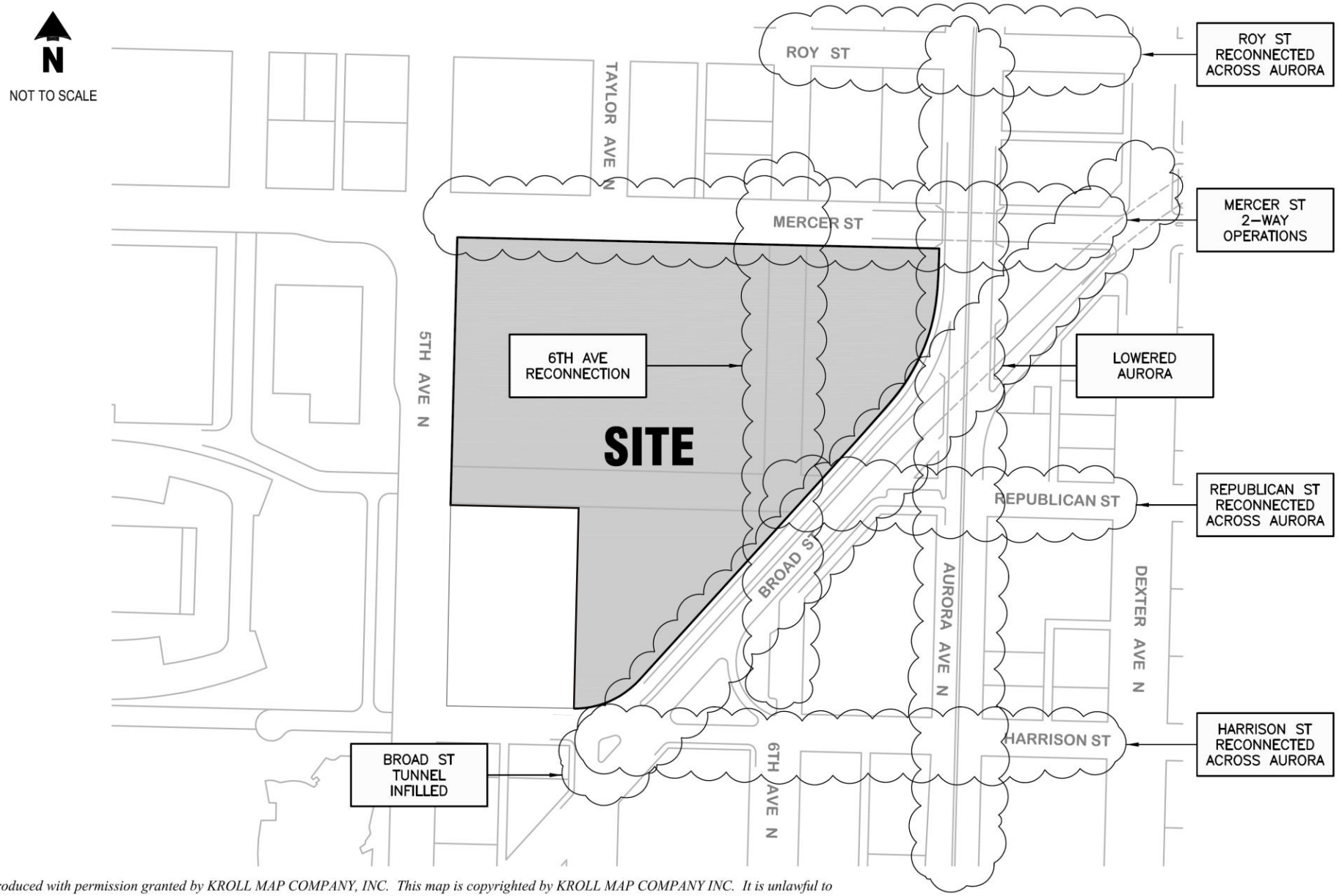

Figure 3-3

Site Vicinity Infrastructure Improvements

SOURCE: The Transpo Group

3.1.4 Mitigation Measures

This section identifies various measures that could offset or reduce transportation impacts of the project *Alternatives*. Although the development alternatives have specific design elements and uses with varying transportation and parking impacts, all of the development alternatives have common impacts that could be mitigated with a TMP and specific intersection improvements described above in the impact sections being proposed by the City of Seattle as part of the South Lake Union Transportation Plan or the Washington State Department of Transportation as part of the Alaskan Way Viaduct project.

Since the City does not have explicit thresholds for mitigation requirements, LOS E or LOS F results do not specifically mandate mitigation. However, a TMP is proposed to lessen the dependence of campus staff on single occupancy vehicles.

Transportation Management Program

The City will require that a TMP be developed for the proposed project consistent with the requirements of SDOT Director's Rule 94-3, and DPD's Director's Rule 14-2002 regarding TMPs. An appropriate TMP goal, progressive over time, will be identified through future discussions with City of Seattle DPD and SDOT staff as project plans are further developed. The TMP goals and supporting elements will be consistent with all City TMP requirements.

South Lake Union Transportation Plan

To the extent that the City has identified a transportation vision for the South Lake Union area that includes a substantial number of planned improvements, including conversion of Mercer Street to a two-way boulevard, it is possible that the City could propose that the project be conditioned to participate in funding these improvements on some level, depending on the identified level of impact. The actual level of participation would be the subject of further analysis and discussion, should it be proposed.

Overall Project Mitigation

In addition to the TMP and participation in the South Lake Union Transportation Plan, the following is a specific measure to mitigate transportation impacts.

- **Fairview Ave./Denny Way** (PM peak hour only) – this intersection would degrade from LOS E to LOS F during the PM peak hour with the addition of traffic generated by the build-out project *Alternatives*. However, the addition of project traffic generated by the build-out of *Alternatives 2 and 3* would increase intersection traffic volumes by 154 vehicles (3.5 percent) and 138 vehicles (3.1 percent) respectively during the PM peak hour. Optimization of the signal timing (cycle length and splits) at this intersection would improve PM peak hour operations at this intersection to LOS E with the *Alternative 2* build-out and *Alternative 3* build-out.

3.1.5 Potentially Unavoidable Adverse Impacts

This section documents those intersections where traffic generated by the development *Alternatives* would cause unavoidable adverse impacts at study intersections.

Impacts associated with each of the development *Alternatives* could be mitigated with a TMP and specific intersection improvements described above in the impact sections being proposed by the City of Seattle as part of the South Lake Union Transportation Plan or the Washington State Department of Transportation as part of the Alaskan Way Viaduct project, except for two intersections where limitations on improvement options and/or capacity restrictions and the proximity to the I-5 accesses likely will result in possible unavoidable adverse impacts.

- **Stewart St./Denny Way** (AM and PM peak hours) – this intersection would continue to operate at LOS F during both the AM and PM peak hours with or without the build-out project *Alternatives*. However, the addition of project traffic generated by the build-out of *Alternatives 2* and *3* would increase intersection traffic volumes by between 143 (2.8 percent) and 158 (3.1 percent) during the AM peak hour, and between 133 (3.1 percent) and 149 (3.4 percent) during the PM peak hour. Because improvement options are limited due to capacity restraints and its close proximity to the I-5 entrance and exit and could result in a possible unavoidable adverse impact.

- **Howell St./Yale Ave.** (AM and PM peak hours) – this intersection would continue to operate at LOS F during both the AM and PM peak hours with or without the build-out project *Alternatives*. However, the addition of project traffic generated by the build-out of *Alternatives 2 and 3* would increase intersection traffic volumes by between 7 (0.4 percent) and 8 (0.4 percent) during the AM peak hour, and between 80 (2.5 percent) and 89 (2.7 percent) during the PM peak hour. Beyond optimization of signal timing, which would not offset project impacts, mitigation options are limited at this intersection and could result in a possible unavoidable adverse impact.

3.1.6 Secondary and Cumulative Impacts

Due to the nature of the transportation analysis conducted for the 500 Fifth Avenue North project, secondary and cumulative impacts have been addressed as part of the primary analysis documented above.

3.2 Visitor Learning Center and Retail Space

With each action alternative, a visitor learning center and retail space may be constructed on the north end of the adjacent Seattle Center garage project. The visitor learning center would total approximately 26,000 square feet. The retail component would include an additional 10,000 square-feet.

3.2.1 Street System

No off-site modifications to street channelization or intersection control are proposed as part of the proposed visitor learning center/retail space.

3.2.2 Trip Generation

Visitor Learning Center

Trip generation data for the proposed or similar land uses are not published by the ITE in *Trip Generation*. Therefore, trip generation would typically be estimated based on programmatic data for the proposed development.

Since programmatic details regarding the use of the visitor learning center are not yet available, the Transpo Group has estimated trip generation for similar land uses using a programmatic approach, including the Seattle Art Museum (SAM) expansion and the Experience Music Project (EMP) expansion. It is anticipated that the trip generation characteristics of the proposed learning center would be similar to these other sites. Table 3.2-1 summarizes estimated trip generation for the proposed learning center based on the trip generation rates associated with the SAM and EMP expansion projects.

Table 3.2-1
Estimated VLC Peak Hour Trip Generation

			Project Trips		
Land Use	Size[1]	Rate[2]	Total	In	Out
SAM Expansion Based	26,000 sf	0.57	15	5	10
EMP Expansion Based	26,000 sf	0.63	15	5	10

[1] Gross area including public and support space
[2] Trips rates based on estimated trip generation derived from rates developed by Transpo in the environmental review of the Seattle Art Museum and Experience Music Project.

As shown in Table 3.2-1, based on the programmatic trip generation for similar land uses, the proposed learning center is estimated to generate 15 additional PM peak hour trips; significantly fewer AM peak hour trips would be generated, since the facility would not be open to the public until 10 a.m.

Actual trip generation associated with the proposed learning center may be lower than shown in Table 3.2-1, since the facility will be closely proximate to the EMP and Seattle Center, and the

likelihood that many visitors may arrive in larger groups, such as school buses.

- **Proximity to Seattle Center** – it is likely that, due to the proximity of the visitor learning center to the Seattle Center, a portion of visitors to the learning center would also visit the Seattle Center. This would result in the *linking* of trips between the two uses, and reducing the number of net new trips associated with the proposed visitor learning center. No reduction was made to account for this characteristic.

- **Visitor Characteristics** – the expectation is that a large proportion of visitors to the visitor learning center would arrive in groups, i.e. school field trips. This would result in a higher average vehicle occupancy for the proposed project than for either the SAM or EMP. No reduction was made to account for this potential occurrence.

The combination of these factors would reduce the number of new PM peak hour trips generated by the proposed visitor learning center from the numbers documented in Table 3.2-1. Overall, however, it is recognized that even the unadjusted totals reflected in Table 3.2-1 are minor traffic volumes and unlikely to result in a noticeable impact on surrounding streets.

Retail

The trip generation for the proposed retail space is based on the Institute of Transportation Engineers' (ITE) *Trip Generation*[7] methodology and local mode-split data in the South Lake Union area. Weekday PM peak hour trip generation by the proposed retail space was estimated. The detailed calculation worksheets are provided in Attachment A.

As shown in Table 3.2-2, the retail space would generate approximately 10 trips during the weekday PM peak hour.

Table 3.2-2
Estimated Retail PM Peak Hour Trip Generation

		Project Trips		
Land Use	Size	Total	In	Out
Retail Space	10,000 sf	10	5	5

The combination of the proposed visitor learning center and retail space is expected to generate 25 new trips during the weekday PM peak hour.

3.2.3 Distribution and Assignment

Traffic associated with the proposed visitor learning center and retail space is expected to distribute to the surrounding local and regional facilities, according to regional distribution patterns, the same percentages that were used for evaluating traffic for the 500 Fifth Avenue North campus to the north. The percentages and distribution patterns are included in 500 Fifth Avenue North Traffic and Transportation Technical Report, March 2006.

[7] ITE, 2003.

3.2.4 Traffic Volumes Impacts

The addition of traffic generated by the proposed visitor learning center and retail space would impact PM peak hour traffic volumes at intersections adjacent to the project site by less than approximately 2 percent. Away from the project site, traffic volume impacts would likely be less than 1 percent. Traffic volume impacts of this magnitude are typically indistinguishable from daily fluctuations in background traffic volumes.

3.2.5 Traffic Operations Impacts

Given the levels of service identified in relation to the other action alternatives, the added traffic associated with the visitor learning center would not change PM peak hour level of service at intersections in the study area. Table 3.2-3 illustrates the revised level of service at the three intersections along Fifth Avenue North, most proximate to the site. The corresponding LOS worksheets are included in Appendix C.

Table 3.2-3
PM Peak Hour LOS Summary

#	Intersection	Alternative 2 Only			Alternative 2 with VLC/Retail		
		LOS[1]	Delay[2]	V/C or WM[3]	LOS	Delay	V/C or WM
6	5th Ave/Mercer St	C	26.8	0.65	C	26.8	0.65
11	5th Ave/Republican St	B	11.0	0.49	B	11.1	0.50
12	5th Ave/Harrison St	C	30.3	0.61	C	30.5	0.61
13	Broad St/Harrison St	C	17.7	EB	C	17.7	EB
14	5th Ave/Broad St	B	19.6	0.56	B	19.6	0.56

1. Level of service
2. Average delay per vehicle, in seconds
3. V/C = Volume-to-capacity ratio for signalized intersections, WM= worst movement/approach for unsignalized intersections.

As shown in Table 3.2-3, no changes in intersection levels of service or noticeable changes in delay would occur as a result of the proposed visitor learning center or retail space.

3.2.6 Site Access

Parking access to the proposed visitor learning center and retail space would be provided via the entrances to the Seattle Center Garage, via the signalized intersection of Fifth Avenue/Republican Street, with an additional access provided from Harrison Street, via a right-in/right-out only driveway. Service vehicles and buses associated with the visitor learning center would use the Harrison Street service corridor entrance, east of the garage access. The Republican Street and Harrison Street accesses would both continue to operate at LOS B during the PM peak hour with the addition of traffic generated by the proposed visitor learning center and retail space.

3.2.7 Transportation Concurrency

Transportation concurrency for the project would continue to be met with the addition of traffic generated by the proposed visitor learning center.

3.2.8 Transit Impacts

The visitor learning center is anticipated to generate few additional transit trips due to anticipated uses and attendance. The retail space is anticipated to generate minimal additional transit trips. Existing transit service adjacent to the project site is anticipated to be able to accommodate any additional demand generated by the proposed visitor learning center and retail space. Therefore, no significant adverse impacts to transit operations are expected to occur.

In the event that school buses are used to bring school children to visit the visitor learning center, they will access the facility via the Harrison Street garage entrance, which will be designed to accommodate buses.

3.2.9 Non-Motorized Travel Impacts

The pedestrian entrances to the visitor learning center and retail space would be at or near the corner of Fifth Avenue North and Republican Street. Existing non-motorized facilities within the study are expected to accommodate the portion of the visitor learning center trip generation that is expected to walk or bike to the project site. The additional non-motorized trips generated by the visitor learning center are not anticipated to degrade any existing facilities.

3.2.10 Safety Impacts

Since the level of incremental added traffic associated with the visitor learning center (Table 3.2-1) and retail space (Table 3.2-2) are very low, no noticeable change in off-site safety is anticipated.

3.2.11 Parking Impacts

Code Requirements

The City of Seattle Land Use Code requires the provision of one parking stall per 250 square-feet of museum public exhibit space, and one parking stall per 350 square-feet of retail space. In addition, the code exempts the first 2,500 square-feet of non-residential use for certain uses including retail. For the purposes of this analysis, it is assumed that the visitor learning center would have approximately 16,000 square feet of public exhibit space and approximately 10,000 square feet of accessory office space. Based on the code requirements, the proposed visitor learning center exhibit space of 16,000 square-feet would require the provision of 64 parking stalls to meet parking code. The 10,000 square-foot retail space, after applying the 2,500 square foot exemption, would require 21 spaces. These uses would revise the parking allocation shown above in Table 3.1-2 to replace the 30 spaces allocated to the "Customer Service Center" with 64 spaces allocated to the "Visitor Learning Center" and 21 spaces allocated to "Retail" in the Fifth Avenue garage. The Land Use Code requirement of 64 spaces for the potential visitor learning center plus 21 spaces for the potential retail use has been

reduced by applying a reduction of 20% for cooperative parking reduction (17 spaces), and then further reduced by another 20% (14 spaces) for the Title 23 transit reduction, resulting in a provision of 54 spaces. The revisions are shown below in Table 3.2-4

Table 3.2-4
Seattle Center Stall Requirements by Facility Amended to Replace the BMGF Customer Service Center with the Visitor Learning Center and Retail

Facility	Parking Requirement	Facility	Parking Requirement
Mercer Arena	33	Fun Forest Restaurant	6
New Seattle Center Pavilion	163	Fun Forest Shop	2
ATM Kiosks		Fun Forest Pavilion	35
Bagley Wright Theater	107	Fun Forest Game Line	9
Bagley Wright – Second Stage	46	Fun Forest Gift Shop	3
Bagley Wright Poncho Forum	17	KCTS Studios	30
Blue Spruce Building	9	Monorail Offices	4
Center House Armory		Northwest Rooms	307
- sub-basement	3	Northwest Craft Center	4
- basement	12	McCaw Hall	369
- First Floor office/retail	12	McCaw Hall Lecture Hall	40
-Children's Museum	88	New Central Plant	5
-Group Theater	41	Seattle Center Shops	9
-Food Court Level	269	Intiman Playhouse	53
-Balcony Level	26	Pottery Northwest	3
-Conference Center	0	Seattle Children's Theater	140
- Fourth Floor	46	Sonics Practice Facility	64
New Seattle Center Coliseum	1719	Space Needle 100 Level	13
Experience Music Project	200	Warehouse	18
EMP New Exhibit Space	84	Westcourt Building	11
Exhibition Hall	400	Center House Restaurant Dining Terrace	5
Phelps Center	32.5	Fisher Pavilion	147
		Subtotal	**4581**
		New Fifth Avenue Garage[8]	
		Parking Office	5
		Visitor Learning Center	64
		Retail	21
		TOTAL STALLS REQUIRED	**4671**
		Title 23 Coop. Parking Reduction (20%)	-934
		Subtotal	3737
		Title 23 Transit Reduction (20%)	-747
		TOTAL TITLE 23 REQUIRED PARKING (REVISED)	**2990**

[8] Seattle Center parking stall requirements as shown on the Master Use Permit Application for the new Fifth Avenue Garage.

This change in use from "Customer Service Center" to "Visitor Learning Center" and "Retail" results in the following revision to Table 3.1-3 Seattle Center Parking Supply provided above in Section 3.1:

Table 3.2-5
Revised Seattle Center Parking Supply

Parking Area	Number of Spaces
Mercer Street Garage	1439
Fifth Avenue Garage	1038
First Avenue North Garage	654
New Lot #6 (west of Intiman Theater)	22
South Coliseum Lot	70
North of Bagley Wright	25
Adjacent to South Side of Opera House	2
North of Center House	2
KCTS Parking	4
Sonics Practice Facility	48
Westcourt Building (Sonics Team Shop)	10
TOTAL PARKING SUPPLY	**3314**
Total Title 23 Required Parking	2990
Surplus Code Required Parking (Revised)	**324**

Parking Demand

Parking demand for the visitor learning center and retail spaces were calculated considering the size, typical employee density, attendance, daily occupancy, and travel mode split of the proposed uses. Calculation worksheets for the parking demand analysis are provided in Appendix C. Peak parking demand for the visitor learning center and retail spaces would total 18 parking stalls.

Based on the trip generation estimates provided above, it is anticipated that the provision of 54 parking stalls for the proposed museum and retail use would exceed anticipated peak parking demand on a typical day.

3.2.12 Mitigation Measures

No impacts have been identified for the visitor learning center and retail space, and mitigation measures are not required.

3.3 Construction Impacts

3.3.1 Air Quality

During construction, dust resulting from excavation and grading would increase concentrations of suspended particulate matter. The construction contractor would have to comply with the Puget Sound Clean Air Agency regulations requiring that reasonable precautions be taken to avoid dust emissions. This could include applying water or dust-binding chemicals during dry weather.

Construction activities would include the use of heavy trucks and smaller equipment such as generators and compressors. These engines would emit air pollutants that would contribute slightly to the degradation of local air quality, however emissions from existing sources in the project area (primarily from traffic) would likely exceed construction equipment emissions. If asphalt paving is used, hydrocarbon emissions from the hot asphalt would be released during paving.

Mitigating Measures

- Emissions from construction equipment and trucks would be reduced by using new and/or well-maintained equipment. Avoiding prolonged periods of vehicle idling and engine-powered equipment would also reduce emissions.

- Trucking of material to and from the construction areas would be controlled to minimize traffic congestion during peak travel times. This would minimize secondary air quality impacts caused by reduced travel speeds.

- Dust produced by construction activities could be reduced by spraying areas of exposed soils and construction roadways with water or dust suppressants. Areas that may be exposed for prolonged periods of time can be paved, planted with a vegetation ground cover, or covered with tarps or gravel.

- The amount of soil carried out of the construction area by exiting trucks can be minimized by wheel washing and by covering dusty truck loads.

- Soil that is carried out of the construction area on existing vehicles can be reduced with an effective street-cleaning effort.

3.3.2 Noise

During each phase of construction, there would be a temporary increase in sound levels near the site due to the use of heavy equipment and the transportation of construction materials. Table 3.3-1 identifies a general range of noise levels generated by various phases of construction. The range of sound levels reflects the fact that construction work is highly variable. Equipment may not operate or may idle for long periods of time, depending on the construction phasing. At some point, however, all the equipment may operate simultaneously, generating sound levels at the high end of the range.

Table 3.3-1
Typical Noise Levels at a Construction Site (dBA)

Activity	Range of Sound Levels	
	All Construction Equipment Operating	Minimum Required Equipment Operating
Ground Clearing	84	84
Excavation	88	78
Foundations	88	88
Erection	79	78
Finishing	84	84

Source: U.S. Environmental Protection Agency, 1971.

Table 3.3-2 displays a range of sound levels associated with equipment likely to be used during the construction of the new buildings. Construction would require concrete mixing and pumping; cutting and drilling of wood, stone, concrete and metal; welding; and the use of compression and cranes.

Table 3.3-2
Typical Construction Equipment Noise (dBA)

	Types of Equipment	Range of Noise Levels at 50 Feet
Materials Handling	Concrete mixers	75–87
	Concrete pumps	81–83
	Cranes (movable)	76–87
	Cranes (derrick)	86–88
Stationary Equipment	Pumps	69–71
	Generators	71–82
	Compressors	74–87
Impact Equipment	Pneumatic wrenches	83–88
	Rock drills	81–98

Source: U.S. Environmental Protection Agency, 1971.

Washington Department of Ecology and Seattle noise regulations would apply to construction noise. The Ecology property-line noise regulations provide that no person shall cause or permit noise to intrude into the property of another person if the noise exceeds the maximum permissible noise levels. Ecology's maximum permissible noise levels are presented in Table 3.3-3.

Table 3.3-3
Ecology Maximum Permissible Noise Levels (dBA)

EDNA of Noise Source	EDNA of Receiving Property			
	Class A (Residential) Daytime 7 AM – 10 PM	Class A (Residential) Nighttime 10 PM – 7 AM	Class B (Commercial)	Class C (Industrial)
Class A (Residential)	55	45	57	60
Class B (Commercial)	57	47	60	65
Class C (Industrial)	60	50	65	70

EDNA = Environmental Designation for Noise Abatement
Source: WAC Chapter 173-60

The property-line noise regulations in Table 3.3-3 depend on the land uses of both the source of a sound and the receiving property, and on the time of day. The environmental designation for noise abatement (EDNA) of a property considers its usage or zoning designation. In general, the Class A EDNA includes residential zones, Class B EDNA includes commercial zones, and Class C EDNA includes industrial zones.

Construction noise must meet the Seattle and Ecology requirements. Daytime construction noise generally is exempt. In Seattle, construction noise could be considered a potential nuisance between 10 PM and 7 AM on weekdays and between 10 PM and 9 AM on weekends and legal holidays. The Ecology property-line noise regulations in Table 3.2-3 apply to construction noise only during nighttime (10 PM to 7 AM) at residential receiving properties (Class A EDNA). Construction would occur only during daytime hours and would comply with the relevant sections of the Seattle noise ordinance.

Because of the proximity of the site to both single-family and multi-family residential units on lower Queen Anne Hill, the hours of construction activities should be limited to minimize disruption during the evening hours.

Mitigating Measures

- To reduce the noise impact of construction on nearby properties, construction activities other than in totally enclosed floors should be limited to non-holiday weekdays between 7:30 A.M. and 6:00 P.M. and Saturdays from 9:00 A.M. to 5:00 P.M. Work outside these times should only be allowed if undertaken within the specific context of a noise-mitigation plan submitted to DPD and approved by the DPD planner.
- Construction noise can be mitigation with the use of properly sized and maintained mufflers, engine intake silencers, and engine enclosures; by turning off equipment when not in use; and confining activities to daytime hours.

3.3.3 Transportation

Alternative 2

Construction of the *Alternative 2* initial phase, beginning in the first or second quarter of 2008, would generate truck and vehicle traffic associated with earthwork and excavation, delivery of materials to the site and similar types of activities. The highest concentration of truck traffic expected to occur during construction would coincide with the earthwork and excavation activities. Preliminary estimates indicate that approximately 150,000 to 190,000 cubic yards of material would be removed in conjunction with initial phase development. This is estimated to generate approximately 15,000 truck trips over an eight to sixteen week time frame. Given the estimated construction schedule, the amount of traffic would equate to between 200 and 400 trips per day, depending upon the number of weeks and the number of days per week which excavation would occur. Truck traffic would be substantially less during the remaining periods of construction.

Construction of the *Alternative 2* build-out, beginning beyond 2010, would generate truck and vehicle traffic associated with earthwork and excavation, delivery of materials to the site and similar types of activities. The highest concentration of truck traffic expected to occur during construction would coincide with the earthwork and excavation activities. At this time it is not known how much material would be removed in conjunction with *Alternative 2* build-out. However, the amount of traffic associated with construction, is expected to be less than the total development related traffic volumes anticipated.

Alternative 3

Construction impacts associated with the *Alternatives 3* build-out are anticipated to be similar to *Alternative 2* build-out, although would likely be slightly lower.

Alternative 4

Construction impacts associated with the *Alternatives 4* build-out are anticipated to be similar to *Alternative 2* build-out, although would likely be slightly lower.

Visitor Learning Center/Retail

If constructed, the visitor learning center and retail space would be completed as part of the construction of the Seattle Center Garage. The additional construction impacts associated with the visitor learning center would be minimal relative to the construction impacts associated with the Seattle Center Garage.

Mitigating Measures

The owner(s) and/or responsible party(s) shall secure DPD Land Use Division approval of construction phase transportation and pedestrian circulation plans. These plans should consider impacts during any demolitions and during construction of the building. The plans shall address the following:

- Ingress/egress of construction equipment and trucks.
- Truck access routes, to and from the site, for the excavation and construction phases.

- Potential temporary displacement/relocation of any nearby bus stops.
- Information to be posted to provide drivers and pedestrians with advance notice of traffic lane or sidewalk closures, including locations of re-routing pedestrian movements.
- Provision of safe pedestrian and vehicular circulation adjacent to the construction site through the use of temporary sidewalks, signs and manual traffic control (flaggers).
- Regular sweeping and washing operations on streets adjacent to the site
- Impacts and mitigation of trips associated with construction and/or demolition activities during major events at Seattle Center.

Appendix A - Transportation

Traffic and Transportation Technical Report

500 Fifth Avenue North

Prepared for:
IRIS Holdings, LLC

April 2006

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Introduction

The analyses of traffic and parking impacts associated with the proposed development alternatives proposed for the 500 Fifth Avenue North project were conducted according to City of Seattle procedures for impact review under the State Environmental Policy Act (SEPA). Impacts are defined as the conditions that would occur with the proposed development (*Alternative 2, Alternative 3, and Alternative 4*) as compared with the conditions without the proposed project (*Alternative 1*). The traffic analysis focuses on the traffic impacts occurring during the peak morning and afternoon commute period, also known as the AM and PM peak hours. The parking impacts evaluate average weekday peak conditions. These analysis conditions were selected since they reflect time periods when the combined effect of project and background traffic volumes is highest and thus the impacts of the proposed project are the greatest.

Project Location and Description

The 500 Fifth Avenue North project is proposed to develop a unified office campus for the Bill and Melinda Gates Foundation. The 500 Fifth Avenue North site is bounded by Mercer St. on the north, Harrison St. on the south, 5th Ave. N. on the west, Broad St. on the southeast, and Aurora Ave. N. on the east. The site vicinity is shown in Figure 1.

The existing project site contains a surface parking lot of approximately 1,217 spaces serving the Seattle Center, and the Seattle Supersonics basketball practice facility. Access to the existing parking lot and practice facility is provided from 5th Ave. N. via the signalized intersection with Republican Street. Additional egress from the parking lot can be provided via secondary accesses located along Harrison St. and Mercer St. These secondary access locations are gated and are typically opened only after large events or during emergencies.

All of the build *Alternatives (2, 3 and 4)* assume that the existing surface parking will be relocated into the Seattle Center Parking Garage, to be constructed on the northeast corner of the intersection of 5th Ave. N./Harrison St. The parking garage is being developed under a separate permit for which the SEPA review has already been completed and the Master Use Permit (MUP) has already been issued. The garage is anticipated to include approximately 1,038 parking stalls. Access to the Seattle Center Parking Garage will be via provided primarily via the signalized intersection of 5th Avenue/Republican Street. Secondary access is provided via a stop-controlled right-in/right-out driveway from Harrison Street.

Alternative 1, the no-action alternative, assumes that the existing land uses, structures, parking, and driveways would remain and provides a baseline for comparing each of the development alternatives. In addition, no roadway improvements were assumed for Mercer Street, 6th Avenue, or Aurora Avenue.

Alternative 2 would include the development of up to 1,000,000 square feet of office space spread through several buildings located in a campus setting. The campus is being developed through the Major Phased Development (MPD) process, which would vest project approval for a period of 15 years. This sets the horizon year for the full development of the project as 2025. Construction of the proposed project would be completed in phases, with the initial phase including approximately 420,000 square feet of development.

Alternative 3 would include the development of up to 900,000 square feet of office space spread through several buildings located in a campus setting. This would again be accomplished through the

Major Phased Development (MPD) process, thus setting the horizon year for the full development of the project as 2025. Construction of the proposed project would be completed in phases, with the initial phase unchanged from *Alternative 2*, including approximately 420,000 square feet of development.

Alternative 4 is consistent with *Alternative 3*, including the development of up to 900,000 square feet of office space spread through several buildings located in a campus setting. *Alternative 4* would however, include the proposed improvements to Mercer Street, 6th Avenue, and Aurora Avenue directly adjacent to the project site.

Under each of the development *Alternatives* (*2*, *3*, and *4*), approximately 450 parking stalls are proposed to be provided for the initial phase of which 204 would be built on-site and 246 made available through a covenant in the adjacent Seattle Center garage. At full build-out of the campus with each development *Alternative*, there would approximately 1,226 parking stalls proposed, of which 980 spaces would be constructed on-site and 246 made available through a covenant in the adjacent Seattle Center garage.

For *Alternatives 2* and *3*, site access for the campus is proposed to be provided primarily via the existing signalized site access where Republican St. intersects with 5th Ave. N. In addition, a right-in/right-out access is proposed to be provided along the Mercer Street frontage. For *Alternative 4*, additional access to the campus would likely be provided from 6th Avenue.

Study Approach

The study area and technical methodologies were identified in advance through coordination with City of Seattle staff and as a result of comments received during the scoping period. The study area includes adjacent roadways and 24 study intersections.

This study reviews the affected street system, traffic volumes and operations, traffic safety, transit, non-motorized facilities, and parking conditions associated with the site, as well as the surrounding neighborhood. The following sections document existing conditions, future baseline conditions, and project impacts, as well as identifying potential mitigation measures, where appropriate.

Since it is anticipated that the project will proceed in phases, the analysis of project impacts is broken-out for both the initial phase of development (2010) and for full build-out of the project (2025).

It is noted that the project is proximate to, and would be impacted by the Alaskan Way Viaduct and Seawall Replacement project as is relates to the portions north of the Battery Street tunnel. In addition, the Mercer Corridor EIS is evaluating the potential conversion of Mercer Street to a two-way boulevard. At the time of this analysis, neither project is approved or funded. Further, analysis results for each remain under development. Therefore, this analysis considers the impacts of the subject project in the context of the existing infrastructure. An analysis alternative with 6th Avenue reconnected through the project site is included, but cannot be quantitatively evaluated until the analysis of the other projects, which include the reconstruction of 6th Avenue, are completed and made available to the public. To the extent that this occurs during the coming weeks/months, a detailed evaluation will be provided as part of the FEIS documentation for this project.

Affected Environment

The following section documents the existing transportation network and conditions in the vicinity of the proposed project, including the existing street system, traffic volumes, traffic operations, transit service and facilities, non-motorized facilities, current safety conditions, and parking conditions. The project study area and project site are illustrated in Figure 1.

Roadway Network

In general, the street system surrounding the site is a combination of one-way and two-way multi-lane streets, typically with on-street parking and sidewalks. Arterial streets within the City have speed limits of 30 miles per hour (mph) unless otherwise posted. Commercial and residential streets generally are posted at 25 mph. The signalized study intersections are controlled with actuated traffic signals, many of which are coordinated with adjacent signals. At unsignalized study intersections, traffic on the minor approach is controlled with stop signs. The individual characteristics of the adjacent study roadways are described in detail below with north-south streets described first, followed by east-west streets.

Figure 2 illustrates the existing intersection channelization and traffic control found in the study area and used in the analysis.

1st Ave. N. is classified as a minor arterial to the south of Denny Way, as a principal arterial between Denny Way and Roy Street, and as a secondary street to the north of Roy Street. To the south of Denny Way, 1st Ave. N. is a two-way roadway with two northbound and one to two southbound travel lanes. Between Denny Way and Mercer St., 1st Ave. N. is one-way northbound, with three travel lanes. Between Mercer St. and Roy St., 1st Ave. N. resumes two-way operations with one travel lane in each direction. Sidewalks and on-street parking are generally provided along both sides of the street.

5th Ave. N. is classified as a two-way principal arterial. There are two lanes in the southbound direction and two/three lanes in the northbound direction with turn pockets at major intersections and a landscaped median adjacent to the Seattle Center. 5th Ave. N. separates the project site from Seattle Center to the west. 5th Ave. N. connects Mercer St. to Broad St. and Denny Way. South of Mercer Street, parking exists on the west side of the street between John and Broad Streets beneath the monorail tracks, parking exists on both sides of the street to the north of Mercer Street.

Aurora Avenue N (SR 99) is a four- to six-lane divided freeway/expressway with a posted speed limit of 40 mph north of Denny Way. On-street parking is prohibited and pedestrian/bicycle facilities are limited along Aurora Avenue N. In addition to Interstate 5 (I-5), Aurora Avenue N serves as a major north/south facility connecting downtown Seattle and the communities north of downtown.

Dexter Ave. N. is classified as a principal arterial. The street has four travel lanes, bike lanes, parking and sidewalks on both sides of the street. This street does not have a center turn lane or turn pockets at intersections between Denny Way and Mercer St.

9th Ave. N is a one-way arterial in the southbound direction. The street has three travel lanes, parking and sidewalks on both sides, with traffic signals at major intersections. 9th Ave. N. connects Westlake Ave. N. and Broad St. south to Denny Way.

Figure 1
Site Vicinity
500 Fifth Avenue North

The Transpo Group

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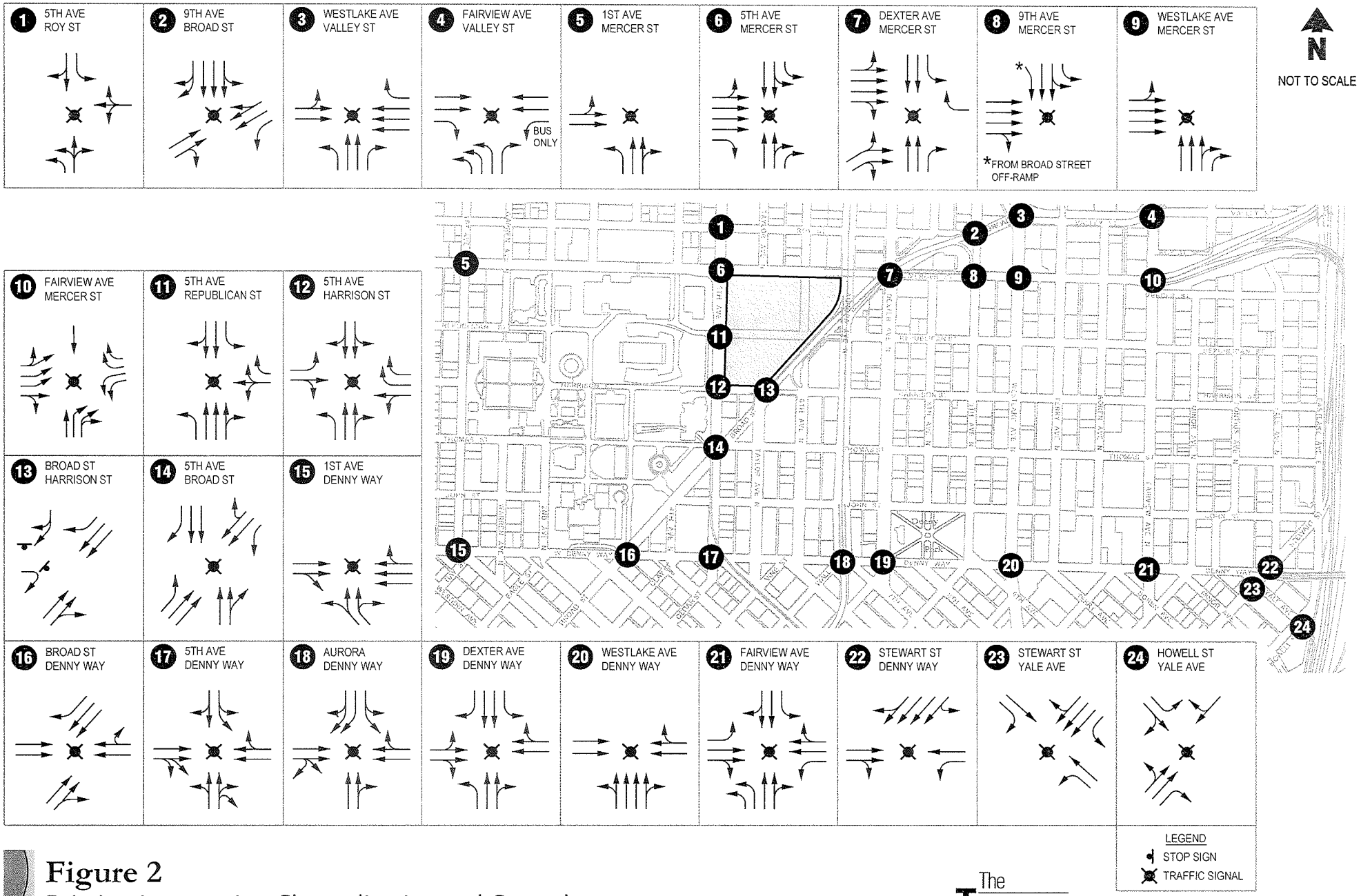

Figure 2

Existing Intersection Channelization and Control

500 Fifth Avenue North

The Transpo Group

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Westlake Ave. N is a one-way arterial in the northbound direction. The street has four lanes, and parking and sidewalks on both sides of the street. Traffic signals are located at the major intersections. Westlake Ave. N. has been designated by the City as a "Green Street," and as such will be enhanced with boulevard-like streetscape treatments that will be designed under the support of a special City program.

Fairview Ave. N. is a three- to four-lane, two-way, north/south principal arterial extending from its intersection with Denny Way north to its intersection with Eastlake Ave. E. at the southeast shoreline of Lake Union. A center left-turn lane extends the length of Fairview Avenue within the study area. Sidewalks are provided along both sides of the street and parking is allowed on both sides of the street, except during the peak hour period. In order to provide an extra travel lane in the peak direction parking is prohibited on the east side of the street between 4 and 6 pm and on the west side of the street between 7 and 9 am.

Broad St. is classified as a principal arterial with four to five travel lanes, and sidewalks on both sides of the street. Traffic Signals are located at major intersections, and many minor intersections have turn restrictions. The arterial is partially lowered below-grade and runs diagonally, connecting Valley Street to the north/east with Denny Way to the south, bordering the southeast side of the project site.

Roy St. is a principal arterial west of 5th Ave. N. and a minor arterial east of 5th Ave. N. with sidewalks are present on both sides of the street. The intersection with 5th Ave. N. is the only study intersection on Roy St.

Valley St. is a four-to-five lane principal arterial in the east-west direction. It has two lanes in each direction with a posted speed limit of 30 mph. The Valley St. arterial exists only between Fairview Ave. N. on the east and Broad St. on the west. Westbound flow is primarily provided as an opposing flow to Mercer St.'s existing eastbound flow. Eastbound flow on Valley St. is an extension of Broad St. to Fairview Ave. N.

Mercer St. is a four- to five-lane, one-way, eastbound principal arterial extending from Elliott Ave. N. to Fairview Ave. N. East of Fairview Ave. N. and south of the I-5 on/off ramps, Mercer St. continues as a minor two-lane, one-way arterial to Eastlake Ave. E., with on-street parking on both sides of the street. Mercer St. provides the greatest capacity to I-5 from the waterfront and the Seattle Center area. It has sidewalks on both sides.

Republican St. is a two-lane, two-way, east/west roadway that is classified as an access street adjacent to the project site. It extends one block west from 5th Avenue (across 5th Avenue from the 5th Avenue entrance to the existing surface parking lot) and it provides on-street parking and pedestrian sidewalks on both sides of the street in the study area.

6th Ave. is a two-lane, two-way, north/south roadway that is classified as an access street adjacent to the project site. 6th Avenue currently does not pass through the project site, dead-ending to the north of Mercer St. and at Broad St. Sidewalks and on-street parking are provided along both sides of the street in the study area.

Harrison St. is a four-lane, two-way, east/west roadway that is classified as a collector arterial in the site vicinity. It extends from just west of 5th Avenue to Broad St and provides on-street parking and pedestrian sidewalks on both sides of the street.

Denny Way is classified as a principal arterial, with four travel lanes and sidewalks but no on-street parking. This street provides a major east-west connection between Elliott Ave. N. and the Seattle

Center area on the west, and to I-5 and the Capital Hill area on the east. Within the study area, traffic signals exist at many of the intersections along Denny Way. Study intersections along Denny Way include the signals at Broad Street, 5th Ave. N., Dexter Ave. N., Westlake Ave. N., and Fairview Ave. N.

Existing Traffic Volumes

Traffic volume data were compiled for the study area to characterize weekday traffic conditions during the AM and PM peak hours. The peak hours document traffic conditions during the hours of highest traffic volume and congestion in the site vicinity. Due to commute patterns and a number of streets in the area that are operated as one-way arterials, travel patterns differ between the AM and PM peak hours. Thus, the evaluation of these two time periods provides a complete perspective of peak hour operations within the study area.

Included in the existing traffic volumes is traffic generated by the existing uses located on the proposed project site. New traffic counts were conducted at all study intersections during 2005. Figure 3 summarizes existing weekday AM and PM peak hour traffic volumes within the study area.

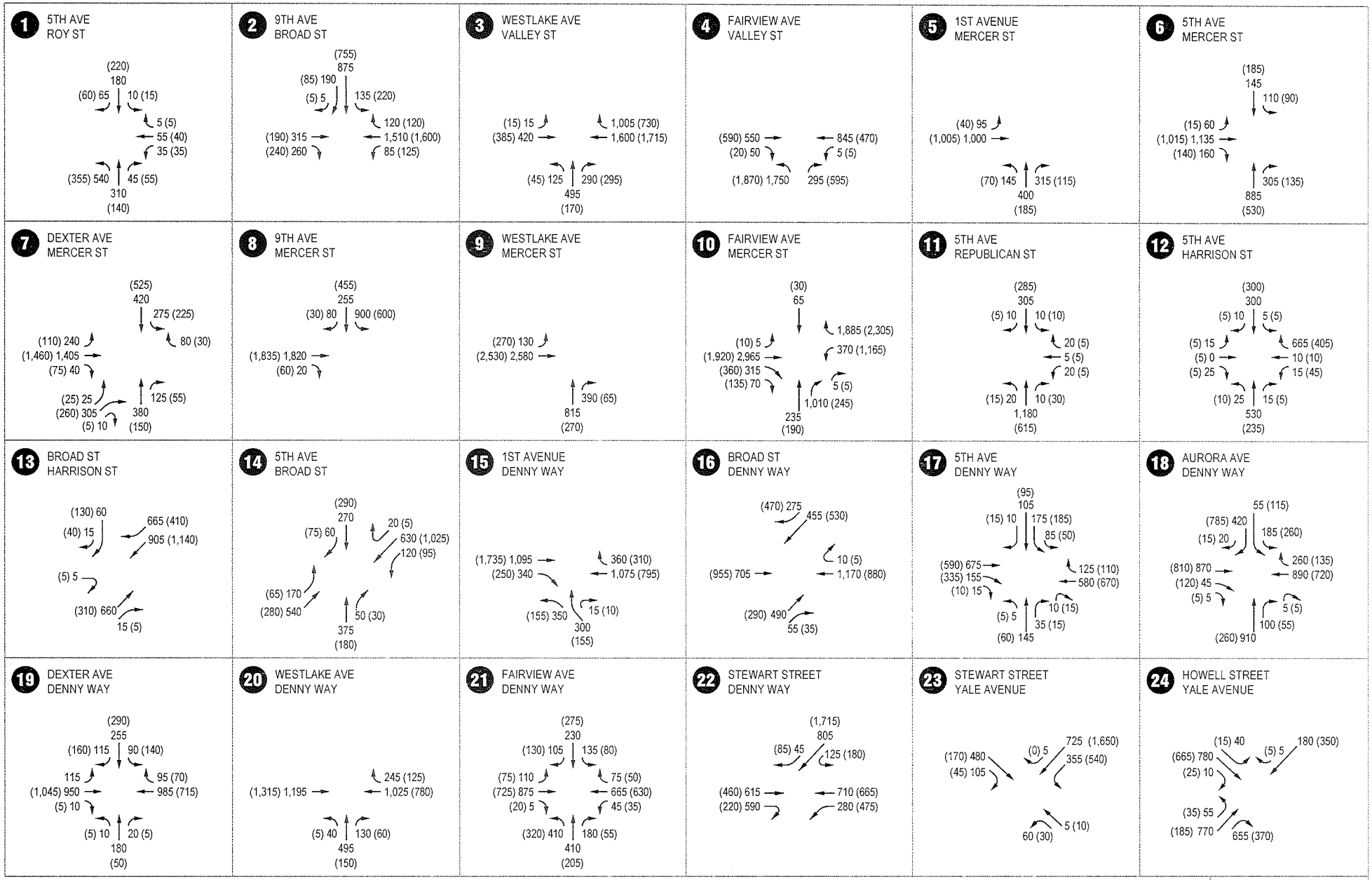

Figure 3
Existing Traffic Volumes

500 Fifth Avenue North

The Transpo Group

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Intersection Operations

A level of service (LOS) analysis was conducted at each study intersection for the weekday AM and PM peak hours. The intersections were analyzed using Synchro 6.0 for both the signalized and unsignalized intersections within the study area. This software program is based on methodologies presented in the *Highway Capacity Manual*[1]. LOS values range from LOS A, indicating good operating conditions with little or no delay, to LOS F, indicating extreme congestion and long vehicle delays. LOS is measured in terms of average delay per vehicle and is reported for the intersection as a whole for signalized intersections. Unsignalized intersections are reported in terms of average delay by movement. A more detailed explanation of LOS criteria is provided in Attachment A. Transportation concurrency is a measure of the capacity of arterial screenlines to accommodate traffic, as described below.

The City's *Comprehensive Plan* does not define a LOS standard for individual *intersections*. Instead, operational standards focus on characteristics of the overall transportation system over which the City has some influence and control. Specifically, the City defines *arterial* levels of service to be the ratio of traffic volumes to capacity (v/c ratio) at designated screenlines, each of which includes two or more parallel arterial routes. The operational standard measures the PM peak hour directional traffic volumes on the arterials crossing each screenline to calculate an overall screenline level of service. To evaluate the performance of the arterial system, the calculated level of service for each screenline is compared with the level of service standard for a particular screenline, as defined by the City. The level of service standard is typically a v/c ratio of 1.0 to 1.2 for each screenline. The performance of the transportation system based on the above-noted screenline standards is analyzed in the *Transportation Concurrency* section for the development alternatives.

Table 1 summarizes the existing AM and PM peak hour LOS at each study intersection. At signalized study intersections, the signal timing and phasing information provided by the City was used to calculate intersection LOS and delay under existing conditions. This approach is likely conservative as all of these intersections would operate with optimized signal timing to reflect traffic patterns on the given day of the traffic counts. The LOS worksheets are included in Attachment B.

[1] Transportation Research Board, 2000.

Table 1. 2005 Existing AM and PM Peak Hour LOS Summary

#	Intersection	AM Peak Hour			PM Peak Hour		
		LOS[1]	Delay[2]	V/C[3] or WM[4]	LOS	Delay	V/C or WM
1	5th Ave/Roy St	C	25.9	0.49	B	18.6	0.64
2	9th Ave/Broad St	D	36.1	0.95	C	28.5	0.87
3	Westlake Ave/Valley St	B	11.2	0.51	B	17.4	0.94
4	Fairview Ave/Valley St	C	29.1	0.76	C	26.1	0.70
5	1st Ave/Mercer St	B	13.5	0.45	B	17.9	0.60
6	5th Ave/Mercer St	D	39.4	0.42	C	21.2	0.59
7	Dexter Ave/Mercer St	D	41.9	0.74	E	59.6	0.93
8	9th Ave/Mercer St	B	19.7	0.71	C	33.3	0.72
9	Westlake Ave/Mercer St	A	8.1	0.62	B	19.8	0.75
10	Fairview Ave/Mercer St	F	87.3	1.07	E	68.9	1.14
11	5th Ave/Republican St	A	8.8	0.16	A	3.7	0.30
12	5th Ave/Harrison St	C	33.2	0.29	B	19.8	0.48
13	Broad St/Harrison St	C	17.9	EB	C	17.3	EB
14	5th Ave/Broad St	D	44.2	0.52	C	21.8	0.53
15	1st Ave/Denny Way	B	12.2	0.75	B	14.0	0.71
16	Broad St/Denny Way	B	18.0	0.66	B	20.4	0.60
17	5th Ave/Denny Way	B	13.3	0.53	B	15.6	0.56
18	Aurora Ave/Denny Way	C	27.8	0.75	E	64.4	0.83
19	Dexter Ave/Denny Way	B	14.0	0.51	B	15.1	0.64
20	Westlake Ave/Denny Way	A	7.1	0.51	B	13.4	0.60
21	Fairview Ave/Denny Way	C	28.5	0.63	D	36.6	0.69
22	Stewart St/Denny Way	D	45.2	0.99	C	30.8	0.84
23	Stewart St/Yale Ave	A	4.5	–[5]	B	13.6	–[5]
24	Howell St/Yale Ave	D	48.1	0.91	E	68.9	1.09

1. Level of service, based on 2000 HCM methodology.
2. Average delay per vehicle, in seconds.
3. V/C = Volume-to-capacity ratio for signalized intersections.
4. WM = worst movement or approach for unsignalized intersections.
5. Intersection runs on controller at Stewart/Denny; resulting v/c ratio not applicable to this intersection.

* Unsignalized intersection.

As shown in Table 1, during the AM peak hour, all study intersections operate at LOS D or above, with the exception of the Fairview Ave. N./Mercer St. intersection, which currently operates at LOS F. During the PM peak hour, all study intersections operate at LOS D or better with the exceptions of the Dexter Ave. N./Mercer St., Fairview Ave. N./Mercer St., Aurora Ave./Denny Way, and Yale Ave./Howell St. intersections which operate at LOS E. The following provides a more descriptive evaluation of these intersections:

#7. Dexter Ave. N./Mercer St. This signalized intersection operates at LOS E during the PM peak hour primarily due to high traffic volumes on both the northbound and eastbound approaches to the intersection, while the existing signal timing allocates the majority of available green time to the Mercer Street approach.

#10. Fairview Ave. N./Mercer St. During both the AM and PM peak hours, the delay experienced at this intersection is primarily due to the high traffic volumes using the on- and off-ramps to/from I-5. This intersection's location and geometry provide constraints that prohibit significant widening, re-channelization, or signal improvements. Therefore, this intersection is expected to continue to operate at LOS F during the weekday AM peak hour with long vehicle delays along Mercer St.

#18. Aurora Ave./Denny Way. The signalized intersections of the Aurora Avenue NB On-Ramps and SB Off-Ramp at Denny Way operate at LOS E during the PM peak hour due to the high eastbound/westbound traffic volumes on Denny Way traveling to/from I-5 to the east, combined with high traffic volumes accessing Aurora Avenue. This intersection's location and geometry provide constraints that prohibit significant widening, re-channelization, or signal improvements. Therefore, this intersection is expected to continue to operate poorly during the weekday PM peak hour.

#24. Howell St./Yale Ave. The signalized intersections of Howell Street/Yale Avenue operate at LOS E during the PM peak hour because of its proximity to I-5, and because of the high traffic volumes exiting/entering the freeway through these intersections.

Traffic Safety

An analysis of historical accident data was conducted at the study intersections, as well as the roadway segments near the project site. Data was obtained from the City of Seattle for the full three years between January 2002 and December 2004, the most recent time period for which data were available. A summary of the total number and average annual accidents at each study intersection is provided in Table 2, and for the roadway segments adjacent to the project sites is provided in Table 3.

The City of Seattle has identified criteria for classifying intersections that experience above average accident rates as High Accident Locations (HAL): signalized intersections with ten or more accidents per year and unsignalized intersections with an average of five or more accidents per year. Intersections with this designation would be targeted for future safety improvements in an effort to reduce accidents.

Based on the historical accident data in Table 2, three study intersections would meet the City's criteria for a HAL. The intersections of 5th Avenue/Mercer Street, 9th Avenue/Mercer Street, and Westlake Avenue N./Denny Way had an average accident rate of greater than 10.0 accidents per year. At the 5th Avenue/Mercer Street intersection the most common accident type (75 percent) was right-angle collisions. Enforcement of red light violations and posting "do not block intersection" signs are options to consider for reducing this type of behavior.

At the 9th Avenue N./Mercer Street intersection, the most common accident type (45 percent) was right-angle collisions, with an additional 40 percent consisting of turning vehicles. Right-angle accidents likely involve either cars violating yellow and/or red lights and being struck by vehicles on the opposing street, or as a result of cars blocking the intersection after a green signal. Enforcement of red light violations and posting "do not block intersection" signs are options to consider for reducing this type of behavior.

At the Westlake Avenue/Denny Way intersection the most common accident type (70 percent) was right-angle collisions. Enforcement of red light violations and posting "do not block intersection" signs are options to consider for reducing this type of behavior.

.

Table 2. Intersection Accident History

#	Intersection	Three-Year Total	Annual Average
1	5th Ave/Roy St	14	4.7
2	9th Ave/Broad St	20	6.7
3	Westlake Ave/Valley St	16	5.3
4	Fairview Ave/Valley St	6	2.0
5	1st Ave/Mercer St	11	3.7
6	5th Ave/Mercer St	33	11.0
7	Dexter Ave/Mercer St	13	4.3
8	9th Ave/Mercer St	32	10.7
9	Westlake Ave/Mercer St	26	8.7
10	Fairview Ave/Mercer St	18	6.0
11	5th Ave/Republican	10	3.3
12	5th Ave/Harrison St	13	4.3
13	Broad St/Harrison St*	2	0.7
14	5th Ave/Broad St	12	4.0
15	1st Ave/Denny Way	13	4.3
16	Broad St/Denny Way	18	6.0
17	5th Ave/Denny Way	4	1.3
18	Aurora Ave/Denny Way	11	3.7
19	Dexter Ave/Denny Way	19	6.3
20	Westlake Ave/Denny Way	32	10.7
21	Fairview Ave/Denny Way	23	7.7
22	Stewart St/Denny Way	14	4.7
23	Stewart St/Yale Ave	10	3.3
24	Howell St/Yale Ave	8	2.7

* Unsignalized intersection

Historical accident rates on nearby roadway segments are relatively low, and do not appear to present any specific traffic safety concern. The majority of the roadway segment accidents involved side-swipe collisions or rear-end collisions, which is consistent with multi-lane roadways.

Table 3. Roadway Segment Accident History

Location	Three-Year Total	Annual Average
5th Avenue		
Harrison St to Republican St	4	1.3
Republican St to Mercer St	8	2.7
Harrison Street		
5th Ave to Taylor Ave	5	1.7
Mercer Street		
5th Ave to Taylor Ave	20	6.7
Taylor Ave to Dexter Ave	9	3.0

The relatively high number of collisions observed on Mercer Street between 5th and Taylor Avenues, shown in Table 3, comprised mainly of side-swipe collisions (65%). This is likely attributable to people making lane changes in advance of the Broad Street underpass median barrier which begins adjacent to Taylor Avenue.

Transit Service

King County Metro operates bus routes close to the project site. Sound Transit's Regional Express bus service does not currently serve the area. The majority of existing routes operate during the weekday AM and PM peak, midday, and evening periods, as well as on weekends. Service headways range from 10 to 60 minutes during the weekday peak hours, and 10 to 120 minutes during the weekday off-peak periods and on weekends. The existing transit service provides local access to the majority of the neighborhoods in the City of Seattle, and regional access to many cities within Puget Sound.

A number of transit stops are located within close proximity of the site. The nearest stops are located north and south of the site on 5th Ave. N., and along Aurora Ave. N. These stops serve Routes 3N, 4N, 5, 16, 26, 28, 82, and 358, providing service to Downtown Seattle, Rainier Beach, University District, Northgate, Lake City, Shoreline, White Center and other local and regional locations. From these stops, transit service can be taken to destinations throughout the region. South of the site on Broad St., Routes 3S, 4S, and 74 are served by a westbound stop near 5th Ave. N.

The Seattle Center Monorail, the nation's first full-scale commercial monorail system provides additional transit service adjacent to the project site. Service is provided along an approximately one mile long route, connecting the Seattle Center with Westlake Center Mall, at Fifth Avenue and Pine Street, to the south. Typically daily service is provided with a single train traveling between the stations. Service is provided from 7:30 a.m. to 11:00 p.m. on weekdays, and from 9:00 am to 11:00 pm on weekends. The Monorail departs every 10 minutes from each station, with each trip taking approximately two minutes to complete. Each train can carry up to 450 passengers per trip. The Monorail provides two-train service during special events and activities, with departures every five minutes or less.

Non-Motorized Facilities

Walking and biking are important elements of the transportation system adjacent to the project site, especially as they relate to mode choice and the effort to reduce vehicular travel, and due to the proximity to the Seattle Center.

Seattle Center is home to numerous venues, including Pacific Science Center, EMP, and Key Arena. Entertainment is provided year-round, with an annual attendance of more than 10 million visitors to the community festivals, sporting events, concerts, cultural programs, theater performances, conventions and trade shows, and other events. Events range in size from small groups holding meetings and private parties to large events such as Sonics games, music events at Key Arena, and summer festivals. Typically, events are scheduled on the weekends or evenings, with some occurring concurrently. However, at times when the Sonics are playing, or during the weekend festivals, the use of the other facilities may be limited. The Sonics schedule typically includes approximately 45 home games between October and April. This combined with other major events at Key Arena (music concerts, and other sporting events), and at other venues in Seattle Center equates to approximately two major events per week, but may result in as many as four during a single week depending on schedule. Attendance at Sonics games averages 15,000, with a maximum capacity of 17,000. In addition, large Center-wide festivals occur several times during the summer, typically during holiday weekends. These events occur over several days and utilize the entire Center rather than individual facilities, and include Bumbershoot, Folklife, Bite of Seattle and others. Attendance at these festivals reaches over 100,000 spread out over several days.

Fifth Avenue separates Seattle Center, located to the west of Fifth Avenue from the approximately 1,217 stall Seattle Center surface parking lot located to the east of Fifth Avenue. As such pedestrian crossing of Fifth Avenue, between Harrison Street and Mercer Street are higher than at other locations along the Fifth Avenue corridor. This is especially true at times before and after events at Key Arena which have a specific start and end time, and during the summer weekend festivals which tend to generate continuous pedestrian traffic throughout the day. The following describes the existing pedestrian and bicycle facilities in the immediate area of the project site.

Pedestrian Facilities

Pedestrian facilities consist primarily of 5- to 8-foot-wide sidewalks along both sides of the streets within the study area. Each of the signalized study intersections includes pedestrian crosswalks, push buttons, and signal heads to facilitate pedestrian travel.

Bicycle Facilities

Based on the *Seattle Bicycling Guide Map* (published by SDOT) there are dedicated bicycle lanes along Dexter Ave. N. With the exception of Dexter Ave. N., bicyclists typically use the vehicle travel lanes for travel in this area.

Parking

The project site currently includes approximately 1,217 spaces in the surface parking lot serving the Seattle Center and Supersonics practice facility. Approximately eight on-street parallel parking stalls are available on the south side of Harrison St. between 5th Ave. N. and Broad St.; generally used by nearby businesses.

Use of the existing surface parking lot varies according the demand generated by events occurring at Seattle Center. On typical weekdays, with only minor events scheduled, the parking lot is underutilized with as few at 15 percent (approximately 190 spaces) of the available stalls occupied. When this is the case, the southwest portion of the parking lot experiences 100 percent utilization, while the areas to the north and east remain unused. This can be attributed to the proximity of the southwest parking stalls to the main pedestrian access to the Seattle Center.

At times when major events are scheduled for the Seattle Center venues, the entire parking lot can achieve close to 100 percent utilization. Major weekday events typically occur the evening, and include Seattle Supersonics home games, music concerts in Key Arena, and other events. Typically major weekday events occur in individual venues, and are scheduled so as not to occur concurrently. Weekday evening events which would generate high parking utilization typically occur between one and twice per weekend depending on the time of year (i.e. during the NBA season), but may result in as many a four during a week depending on schedule. During 2004, parking utilization data showed that the surface parking lot achieved 100 percent utilization on two weekdays. Weekday evening events typically have a scheduled start and end time resulting in the majority of vehicles entering the parking lot during a short time period in advance of the event, and leaving the parking lot during the period immediately following the end of the event.

Major weekend events occur several times during the summer, typically during holiday weekends. These events occur over several days and utilize the entire Center rather than individual facilities, and include Bumbershoot, Folklife, Bite of Seattle and others. During 2004, parking utilization data showed that the surface parking lot achieved 100 percent utilization during 15 weekend days. Weekend events, which occur throughout the day, although having higher attendances typically, experience less pronounced peaks in arrivals or departures.

Impacts of the 2010 Initial Phase Project Alternatives

This section of the technical report describes the expected traffic and parking conditions within the study area for each of the project alternatives. The impacts associated with the initial phase project alternatives are evaluated for a horizon year of 2010 with a first phase development of approximately 400,000 square feet.

Alternative 1 Initial Phase (No Action)

This section of the technical report describes expected traffic and parking conditions within the study area if no new development were to occur on the project site. The *Alternative 1* (No Action) initial phase assumes that the existing land uses; structures, parking, and driveways would remain and provides a baseline for comparing each of the development alternatives. The traffic, circulation, and parking analysis for the *Alternative 1* (No Action) initial phase was conducted for AM and PM peak hour conditions in the year 2010, consistent with the year of potential build-out of the *Alternatives 2, 3, and 4* initial phase.

Planned Improvements

Planned transportation improvements within the study area are categorized into Roadway, Transit and Rail, and Non-Motorized Improvements. The review of potential transportation improvements provides an overview of what the street system may look and feel like to drivers, pedestrians, and bicyclists within the horizon timeline.

Roadway Improvements

The City of Seattle *2005–2010 Adopted Capital Investment Program* (CIP) was reviewed to identify transportation improvement projects planned for the study area. The CIP lists improvement projects that have been approved by the City and have identified funding sources within the next six years. Within the study area limits, there are several improvements listed for implementation, however, each of these improvements are area-wide projects so the specific improvements that may occur in the study area are not known at this time. The funding outlined in the current CIP for the Mercer Corridor Project is for the completion of an EIS only, and does not include full construction funding.

- **Mercer Corridor Project.** The City's CIP identifies this project to improve transportation facilities in the South Lake Union Mercer Corridor. The project's EIS is currently evaluating several options, including widening Mercer St. and converting it to two-way operations.
- **South Lake Union Street Car**. This project includes construction of a modern streetcar line between Downtown Seattle, South Lake Union Park and Fred Hutchison. It will circulate northbound, in a vehicle travel lane on Westlake Avenue, Thomas Street, Terry Avenue, and then Valley Street to Fred Hutchison. The return route will include Valley Street and Westlake Avenue. Near the subject site, two southbound stops are anticipated on Westlake, south of Mercer and south of Harrison, and northbound on Terry, mid-block between Republican and Mercer, and between Harrison and Thomas Streets. Since nearly all of the funding has been identified, the streetcar and its associated

roadway improvements have been incorporated into this analysis. This includes the conversion of Westlake to two-way operations, and the conversion of Terry to one-way northbound operations between Mercer and John Streets. The streetcar is anticipated to be constructed and in operation by the end of 2007,

Each of these improvements represents a component of the broader *South Lake Union Transportation Study*, which is summarized in a subsequent section.

Rail and Transit Improvements

The downtown Bus Tunnel will be converted from use by buses to also accommodate light rail as part of the Sound Transit system. Construction of rail lines in the tunnel required the closure of the Bus Tunnel in September 2005 for a period of approximately two years. While the tunnel is closed, bus service that had previously used the Bus Tunnel through Downtown Seattle is being diverted to surface streets. The tunnel is anticipated to reopen to bus service during Fall 2007, with light rail service in the tunnel anticipated to begin during 2009.

Non-Motorized Improvements

Based on review of the City's CIP, no non-motorized facility improvement projects are currently identified for the study area within the next six years.

South Lake Union Transportation Study

The City of Seattle is currently evaluating a package of transportation improvements for the South Lake Union area. The improvements have been documented in the South Lake Union Transportation Plan with the goal of improving Seattle's transportation problems, including the "Mercer mess." The Plan has been conceived with broad support from a diverse group of neighborhood, business and community representatives. The goals of the Transportation plan are to reconnect a growing neighborhood to the City, untangle streets that create barriers in the middle of Seattle, improve mobility for people in Queen Anne, Capitol Hill, Eastlake and surrounding neighborhoods that use this corridor, promote transit, walking, and biking, and enhance a smooth flow of freight and people through the corridor.

Although the improvements are being evaluated as part of a package, the specific components identified as part of the overall transportation package will be implemented on an individual basis.

The improvements call for the conversion of Mercer St. from one-way to two-way operations, with the provision of three-travel lanes in each direction and additional turn lanes at intersections. To enable this to occur, Valley St. would be narrowed to a three-lane section with bike lanes. Left turn lanes may be provided at key intersections, as needed, such as Westlake Avenue. These changes would reduce regional traffic on Valley St. while focusing traffic to/from I-5 onto Mercer St. Mercer St. would also be reconnected across Aurora Ave. N., as would Thomas St. In addition, both 9th Ave. N. and Westlake Ave. N. would be converted to two-way operations between Roy/Valley St. to the north and Denny Way to the south. Other roadway changes are also being considered to Thomas St., Harrison St., and 6th Ave. N. to improve local access and circulation, and to Fairview Ave. N. to improve transit progression, speed and reliability. In addition to the roadway changes, as many as ten intersections are being considered for signalization.

Various improvements are also being considered for non-motorized and transit facilities, with the provision of additional bicycle lanes and improvements to pedestrian and transit facilities. Transit

improvements would include new bus routes, increased frequency on existing routes, and the provision of Transit Signal Priority on Fairview Ave. N. to reduce delays for buses. A new streetcar system is also being considered, as described earlier. The streetcar would operate along Westlake and Terry Avenues, which would be converted to two-way and one-way operations, respectively.

Non-motorized improvements would include the construction of wider sidewalks with curb bulbs and additional crossing locations, and an enhanced pedestrian connection across I-5 on Denny Way. In addition, bike lanes, paths and routes would be created throughout the South Lake Union Neighborhood. Terry Avenue is to be modified to accommodate and emphasize non-motorized and transit users.

However, at this time none of the components of the *South Lake Union Transportation Study* have committed construction funding identified, and it is not anticipated that any of the aforementioned improvements would be completed prior to the occupancy of the proposed project, with the exception of the streetcar. Therefore, only the streetcar-related improvements (two-way Westlake Ave. and one-way Terry Ave.) were assumed as part of the future base case conditions in this transportation analysis. This provides a conservative "worst case" analysis of the impacts associated with the proposed project. Figure 4 shows the intersection channelization that is assumed for the future 2010 analysis.

Developer Improvements

In addition to the transportation projects identified above, improvements identified to mitigate the impacts of the pipeline projects identified in the following section were included in the analysis of the *Alternative 1* (No Action) initial phase. Three intersection improvement projects have been identified, one proposed to mitigate impacts of the proposed UW Medicine project, the second as part of the proposed 2201 Westlake development, and the third as part of the proposed Seattle Center Garage.

The improvement proposed for the UW Medicine project would remove parking from the eastbound approach to the intersection of Westlake Ave. N./Republican St to provide a separate left-turn lane. The improvement proposed for 2201 Westlake would prohibit the northbound left-turn movement at the Denny Way/Westlake Ave. N. intersection. The improvement proposed for the Seattle Center Garage would implement east/west split phasing at the 5th Avenue/Harrison Street intersection, while prohibiting westbound right-turns on red, and providing east/west pedestrian connectivity across the north leg during the eastbound vehicle phase.

Traffic Volumes

The 2010 AM and PM peak hour traffic volumes used in the analysis of the *Alternative 1* (No Action) initial phase are comprised of existing traffic, background traffic growth, and traffic generated from specific planned developments anticipated to be occupied by the year 2010. An annually compounded growth rate of 0.5 percent was applied to existing (year 2005) peak hour volumes to account for general traffic growth in the study area projected by the year 2010. The annual average growth rate was derived from historical counts provided by SDOT at twelve locations in the South Lake Union Area. SDOT supplied traffic count data for the past nine years. All raw traffic count data was adjusted based on seasonal traffic volume factors also supplied by SDOT. Based on this adjusted data, one-, three-, five- and seven-year growth rates were determined for north-south, and east-west corridors in the study area. For each of these cases, the growth rates for weekday AM, PM and daily traffic volumes were calculated.

Review of the historic traffic count data indicated that traffic volumes in the study area have grown at annual rates ranging from negative growth up to 2.0 percent, with little or no identifiable growth along the Mercer St. or Denny Way corridors. Based on these growth trends, an overall annual average growth rate of 0.5 percent per year was established to provide a baseline estimate (before consideration of known projects) of future traffic growth. In addition, AM and PM peak hour traffic generated by planned development projects, also called "pipeline projects" were identified within the general vicinity.

This approach of using a combination of background traffic growth, coupled with pipeline projects, has been consistently applied in a number of traffic impact studies for Seattle developments that have been reviewed and approved by the City. Applying a 0.5 percent annual traffic growth rate, and specifically including traffic generated by pipeline development generally results in traffic forecasts that exceed historic traffic growth rates. To the extent that this occurs, cumulative traffic volume forecasts with the project and related traffic congestion levels would be higher than actual levels. This approach helps ensure that actual traffic impacts are not underestimated.

The pipeline projects included in the traffic analyses include those projects listed below. As shown, the analysis includes 22 potential new developments; the list was compiled based on known projects and updated information provided by DPD. The projects represent those that have recently been completed or are known to be in the planning and development stages yet were not open and occupied as of the date the traffic counts used in this analysis were conducted. It is recognized that the list of potential pipeline projects will change over time, as new projects are introduced to DPD and others are dropped due to feasibility. To account for the uncertain viability and timing of completion of these projects, the additional traffic associated with these projects was reduced by approximately 25 percent. This is consistent with other studies in the area. The background growth rate of 0.5 percent would generally account for any other potential development that is not listed below.

- 2nd/Lenora
- Alexan Cascade
- Mirabella Retirement
- 2nd/Pine
- 2201 Ninth
- 220 Elliott Ave
- UW Medicine (Phase II & III)
- Block 51SE
- 420 Yale Apts
- Bargreen
- Century Tower
- Block T
- 819 Olive
- 600 Denny
- 912 Dexter
- 1540 Eastlake
- 1925 Ninth Avenue
- Interurban Exchange
- 2200 Westlake
- Alley 24[2]
- 1520 Eastlake
- Block 40

Adjustments were also made to account for the construction of the proposed South Lake Union streetcar project which is anticipated to be complete by 2007. As mentioned above, the streetcar requires the conversion of Westlake to two-way operations, and the conversion of Terry to one-way northbound operations between Mercer and John Streets. Adjustments were made to local travel patterns to reflect these changes.

The peak hour traffic from pipeline projects, added together with the background 0.5 percent annual growth in existing traffic, and the adjustments made to reflect the changes proposed to accommodate the streetcar, result in estimated *Alternative 1* (No Action) initial phase traffic volumes. Figure 5 summarizes the traffic volumes that would occur during the AM and PM peak hour periods for the *Alternative 1* (No Action) initial phase in 2010.

[2] Formerly known as the Richmond Block Re-development.

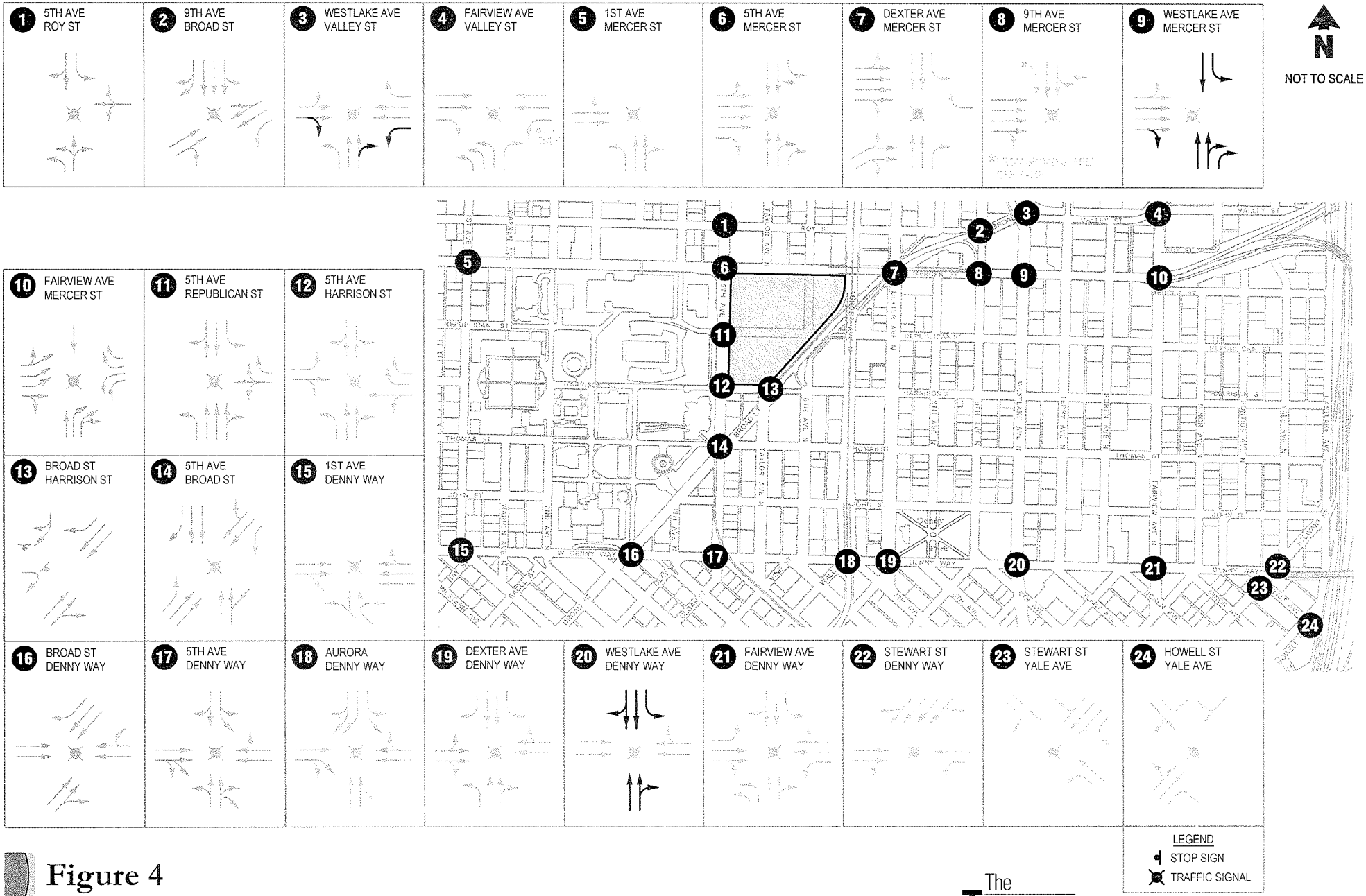

Figure 4

2010 Initial Phase Intersection Channelization and Control

500 Fifth Avenue North

The Transpo Group

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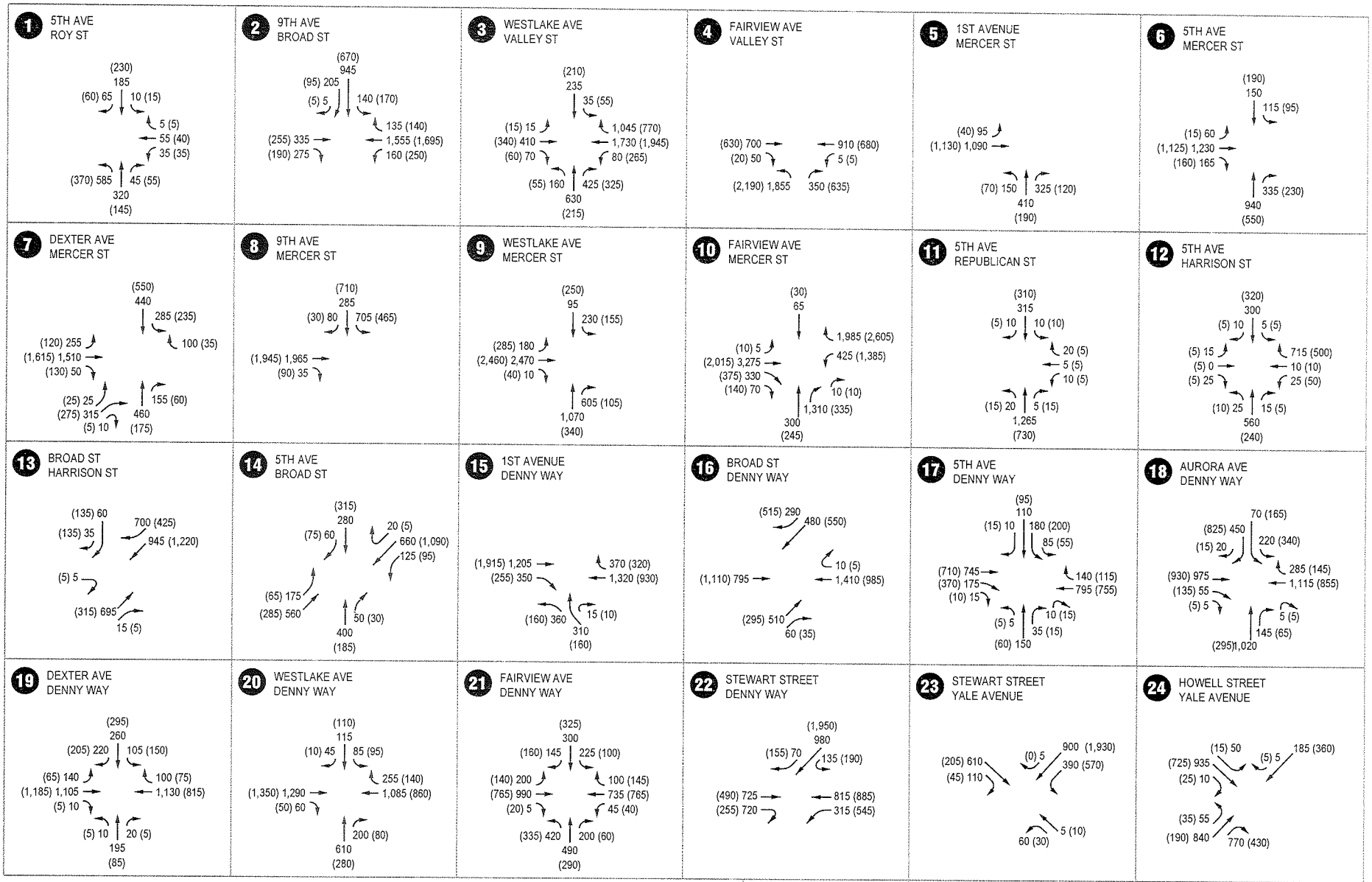

Figure 5

2010 Initial Phase Traffic Volumes - *Alternative 1* (No Action)

500 Fifth Avenue North

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Traffic Operations

Weekday peak hour intersection levels of service (LOS) were calculated for each of the study intersections for the *Alternative 1* (No Action) initial phase. Adjustments were made to the traffic operations analysis to reflect the proposed changes to the local street system to account for the construction of the proposed South Lake Union streetcar project which is anticipated to be complete by 2007. As mentioned above, the streetcar requires the conversion of Westlake to two-way operations, and the conversion of Terry to one-way northbound operations between Mercer and John Streets. Adjustments were made to the local street system to reflect these changes for the LOS analysis.

At those study intersections not located along the proposed streetcar route, the intersection LOS analysis inputs (cycle length, number of lanes, phasing, etc.) remained unchanged from those used for the LOS analysis of existing conditions. The only exception are for intersections with actuated signals, in which case the green times were re-optimized based on year 2010 weekday AM and PM peak hour traffic volumes. Tables 4 and 5 respectively provide a summary of AM and PM peak hour levels of service, delays, and v/c ratios at study intersections for the *Alternative 1* (No Action) initial phase.

Table 4. 2010 Initial Phase AM Peak Hour LOS Summary – *Alternative 1* (No Action)

		2005 Existing			2010 Alternative 1 (No Action)		
#	Intersection	LOS[1]	Delay[2]	V/C or WM[3]	LOS	Delay	V/C or WM
1	5th Ave/Roy St	C	25.9	0.49	C	26.5	0.51
2	9th Ave/Broad St	D	36.1	0.95	C	29.5	0.95
3	Westlake Ave/Valley St	B	11.2	0.51	C	23.7	0.88
4	Fairview Ave/Valley St	C	29.1	0.76	C	33.2	0.86
5	1st Ave/Mercer St	B	13.5	0.45	B	14.2	0.50
6	5th Ave/Mercer St	D	39.4	0.42	D	43.5	0.45
7	Dexter Ave/Mercer St	D	41.9	0.74	D	44.1	0.82
8	9th Ave/Mercer St	B	19.7	0.71	C	27.6	0.76
9	Westlake Ave/Mercer St	A	8.1	0.62	C	21.7	0.81
10	Fairview Ave/Mercer St	F	87.3	1.07	F	>120.0	1.25
11	5th Ave/Republican	A	8.8	0.16	A	9.7	0.18
12	5th Ave/Harrison St	C	33.2	0.29	C	34.2	0.36
13	Broad St/Harrison St*	C	17.9	EB	C	19.0	EB
14	5th Ave/Broad St	D	44.2	0.52	D	47.6	0.53
15	1st Ave/Denny Way	B	12.2	0.75	B	14.8	0.81
16	Broad St/Denny Way	B	18.0	0.66	C	20.4	0.76
17	5th Ave/Denny Way	B	13.3	0.53	B	13.1	0.60
18	Aurora Ave/Denny Way	C	27.8	0.75	D	45.3	0.92
19	Dexter Ave/Denny Way	B	14.0	0.51	B	15.9	0.67
20	Westlake Ave/Denny Way	A	7.1	0.51	B	14.5	0.68
21	Fairview Ave/Denny Way	C	28.5	0.63	C	34.7	0.80
22	Stewart St/Denny Way	D	45.2	0.99	F	90.7	1.14
23	Stewart St/Yale Ave	A	4.5	–[5]	A	5.2	–[5]
24	Howell St/Yale Ave	D	48.1	0.91	E	66.7	1.04

1. Level of service, based on 2000 HCM methodology.
2. Average delay per vehicle, in seconds.
3. V/C = Volume-to-capacity ratio for signalized intersections, WM= worst movement/approach for unsignalized intersections.
4. Based on the v/c ratio of greater than 1.20, vehicle delay at this intersection may be greater than reported in the table.
5. Intersection runs on controller at Stewart/Denny; resulting v/c ratio not applicable to this intersection.

* Unsignalized intersection

Table 5. 2010 Initial Phase PM Peak Hour LOS Summary – *Alternative 1* (No Action)

		2005 Existing			2010 Alternative 1 (No Action)		
#	Intersection	LOS[1]	Delay[2]	V/C or WM[3]	LOS	Delay	V/C or WM
1	5th Ave/Roy St	B	18.6	0.64	C	20.1	0.66
2	9th Ave/Broad St	C	28.5	0.87	C	25.4	0.92
3	Westlake Ave/Valley St	B	17.4	0.94	D	50.6	1.16
4	Fairview Ave/Valley St	C	26.1	0.70	C	28.9	0.77
5	1st Ave/Mercer St	B	17.9	0.60	B	19.0	0.63
6	5th Ave/Mercer St	C	21.2	0.59	C	26.5	0.63
7	Dexter Ave/Mercer St	E	59.6	0.93	E	68.3	1.04
8	9th Ave/Mercer St	C	33.3	0.72	C	30.2	0.69
9	Westlake Ave/Mercer St	B	19.8	0.75	F	106.2	1.09
10	Fairview Ave/Mercer St	E	68.9	1.14	F	>120.0	1.35
11	5th Ave/Republican	A	3.7	0.30	A	3.4	0.31
12	5th Ave/Harrison St	B	19.8	0.48	C	30.2	0.58
13	Broad St/Harrison St*	C	17.3	EB	C	18.0	EB
14	5th Ave/Broad St	C	21.8	0.53	C	21.4	0.55
15	1st Ave/Denny Way	B	14.0	0.71	B	15.9	0.78
16	Broad St/Denny Way	B	20.3	0.60	C	20.6	0.71
17	5th Ave/Denny Way	B	15.9	0.56	B	16.0	0.61
18	Aurora Ave/Denny Way	E	64.4	0.83	F	>120.0	1.13
19	Dexter Ave/Denny Way	B	15.1	0.64	B	16.3	0.80
20	Westlake Ave/Denny Way	B	13.4	0.60	C	22.0	0.85
21	Fairview Ave/Denny Way	D	36.6	0.69	E	55.3	0.90
22	Stewart St/Denny Way	C	30.8	0.84	D	53.7	1.00
23	Stewart St/Yale Ave	B	13.6	–[5]	B	15.5	–[5]
24	Howell St/Yale Ave	E	68.9	1.09	F	>120.0	1.34

1. Level of service, based on 2000 HCM methodology.
2. Average delay per vehicle, in seconds.
3. V/C = Volume-to-capacity ratio for signalized intersections, WM= worst movement/approach for unsignalized intersections.
4. Based on the v/c ratio of greater than 1.20, vehicle delay at this intersection may be greater than reported in the table.
5. Intersection runs on controller at Stewart/Denny; resulting v/c ratio not applicable to this intersection.

* Unsignalized intersection

As shown in Tables 4 and 5, 2010 intersection levels of service within the study area are expected to change at a number of study intersections between Existing and 2010 *Alternative 1* (No Action) initial phase conditions. The changes are the result of a combination of factors, including background traffic growth and the addition of pipeline project traffic. Also, changes in intersection LOS at study intersections on Westlake Ave. N. and Terry Ave. N. can be attributed in part to the changes proposed as part of the streetcar project which would convert Westlake Ave. N. to two-way operations and a portion of Terry Ave. N to one-way operations. The following list summarizes the two study intersections that would continue to operate poorly under *Alternative 1* (No Action) initial phase conditions and the five study intersections where the LOS is expected to degrade to LOS E or F between the Existing and *Alternative 1* (No Action) initial phase conditions. They include:

#7. Mercer St./Dexter Ave. N. This intersection would continue to operate at LOS E during the PM peak hour. This is the result of increased background and pipeline traffic volumes.

#9. Mercer St./Westlake Ave. N. This intersection would degrade from LOS B to LOS F during the PM peak hour. This is the result of a combination of the conversion of Westlake Ave. N to two-way operations to accommodate the proposed streetcar and increased background and pipeline traffic volumes.

#10. Mercer St./Fairview Ave. N. This intersection would continue to operate at LOS F during the AM peak hour, and would degrade from LOS E to LOS F during the PM peak hour. This intersection would continue to operate at a poor LOS as a result of high traffic volumes and its proximity to I-5. Delays at this intersection would increase as a result of background traffic growth and pipeline project trips accessing I-5 via this intersection.

#18. Denny Way/Aurora Ave. N. This intersection would degrade from LOS E to LOS F during the PM peak hour. Poor PM peak hour operations at this intersection would continue due to the intersection providing access to/from Aurora Ave. N., and high traffic volumes on Denny Way. Intersection delay would increase as a result of the combination of growth in background traffic volumes and pipeline project traffic.

#21. Denny Way/Fairview Ave. N. This intersection would degrade from LOS D to LOS E during the PM peak hour. This reduction in LOS can be attributed to the intersections proximity to I-5, and increases in background traffic volumes and the addition of pipeline traffic volumes which access I-5 via Denny Way.

#22. Denny Way/Stewart Ave. N. This intersection would degrade from LOS D to LOS F during the AM peak hour. This reduction in LOS can be attributed to the intersections proximity to I-5, and increases in background traffic volumes and the addition of pipeline traffic volumes which exit I-5 at this intersection.

#24. Yale Ave./Howell St. This intersection would degrade from LOS D to LOS E during the AM peak hour, and from LOS E to LOS F during the PM peak hour. This intersection provides access to I-5 from the South Lake Union and Denny Triangle neighborhoods. Increased background traffic volumes and the addition of pipeline project trips result in degraded conditions by 2010.

The signalized intersections of Fairview Ave. N./Mercer St. (AM and PM peak hours), and Howell St/Yale Ave (PM peak hour) are forecast to have entering volumes that exceed capacity by close to 20 percent (a volume-to-capacity (v/c) ratio exceeding 1.20). At a v/c ratio of greater than 1.20, calculated vehicle delays become increasingly inaccurate. This is due to the sensitivity of the vehicle delay equation at high v/c ratios and, as a result, the vehicle delay exponentially increases. Thus, changes in LOS and operations are best measured by the v/c ratio and delay is reported as greater than 120 seconds to indicate this condition.

Locations where intersection operations shown in Tables 4 and 5 improve between existing conditions and the *Alternative 1* (No Action) initial phase can be attributed to the optimization of signal timing and roadway modifications made to reflect anticipated 2010 conditions.

Transit & Rail

Transit operations in the study area have not changed as a result of the closure of the downtown Bus Tunnel (September 2005). This shift from Bus Tunnel to surface street operations has not changed the overall degree of transit accessibility for the site vicinity. The number of routes and the frequency of routes traveling through downtown and near the project site are similar to conditions prior to the Bus Tunnel closure.

Bus service is anticipated to return to the Tunnel during Fall 2007, with light rail service in the tunnel anticipated to begin during 2009. In addition, while bus transit headways are expected to be increased, overall transit service headways are expected to be reduced through Downtown since rail service will attract a portion of transit ridership.

It is not anticipated that any changes are likely to be made to the existing Seattle Center Monorail which would result in operations being significantly different that those documented above for existing conditions.

As stated in the *Planned Improvements* portion of this section, the South Lake Union Streetcar is anticipated to be complete by 2007, and would improve transit connectivity through the study area. This is anticipated to increase transit travel within the study area compared to 2005 existing levels.

Non-Motorized Facilities

As stated in the *Planned Improvements* portion of this section, no changes to the non-motorized facilities within the study area are anticipated by 2010. While non-motorized travel is anticipated to increase within the study area compared to 2005 existing levels, existing non-motorized facilities are anticipated to accommodate anticipated growth.

Safety

There would be a slight increase in the potential for traffic accidents at the study intersections proportionate to the increase in traffic due to background and pipeline traffic growth that would occur by 2010. Therefore, it is possible that the proportionate increase in traffic at the intersections of Mercer St/5th Avenue, Mercer St/9th Avenue, and Denny Way/Westlake Ave. N. may impact the existing safety hazard at these HAL locations.

Parking

Parking supply in the project vicinity and on the project site is expected to remain consistent to the existing conditions documented in the *Affected Environment* portion of this section. No changes to on-street parking supply are identified by SDOT in the site vicinity. Similarly, the *Alternative 1* (No Action) initial phase would maintain current on-site parking supply for the existing uses. In addition, the proposed 1,038 stall Seattle Center Parking Garage is anticipated to be complete by 2010.

Alternative 2 Initial Phase

This section documents traffic conditions within the study area if development were to occur according to the initial phase of the *Alternative 2* initial phase.

The *Alternative 2* initial phase would include the re-development of the existing Seattle Center surface parking lot bounded by Aurora Ave N. on the east, Mercer St. on the north, Harrison St. on the south, and 5th Avenue N. on the west.

Buildings containing approximately 420,000 sq. ft. of above-grade development is proposed for the *Alternative 2* initial phase. It is anticipated that the principal use of the structures would be office space for foundation employees and visitors. While the current site design plans reflect approximately 420,000 sq. ft. of building area, 450,000 sq. ft. was used as the basis of the traffic

analysis herein. This assures that impacts disclosed will not be underestimated, since 450,000 sq. ft. is approximately 7 percent higher than the current design proposal. This also assumes that, to the extent that minor design changes evolve over time, the analysis of traffic impacts based on 450,000 sq. ft. will remain a valid disclosure.

It is noted that impacts related to parking are based on the currently proposed 420,000 sq. ft project area.

On-site parking is proposed for approximately 204 vehicles. Access to the on-site parking garage would be provided from 5th Avenue N and Republican Street through the proposed Seattle Center parking garage, and from the proposed right-in/right-out driveway on Mercer Street. Truck loading and service bays for this phase of campus development would be accessed from 5th Avenue N.

Street System

No off-site modifications to street channelization or intersection control are proposed as part of *Alternative 2* initial phase. Development associated with *Alternative 2* initial phase would improve existing sidewalks on the site frontage along Mercer Street, Harrison Street and 5th Avenue N.

Traffic Generation

The trip generation for the proposed development is based on the Institute of Transportation Engineers' (ITE) *Trip Generation*[3] methodology and local mode-split data in the South Lake Union area. Weekday average daily, AM peak hour, and PM peak hour trip generation by the proposed development were estimated. Three steps were taken to estimate project trip generation; each is described below.

- ITE Office Data -- Trip rates from Trip Generation were used to determine a standard vehicular trip generation for office use. Vehicle trip generation was then adjusted based on typical ITE mode-split data for office to estimate trip generation in terms of person-trips. ITE identifies a 95-percent share for single occupancy vehicles (SOV), with the remaining person trips generated by carpool, transit, or non-vehicular trips. The high SOV share is due to the fact that most of the trip generation studies conducted for ITE were conducted in suburban areas, which typically have lower densities and minimal transit service.

  To account for the more urban setting of the project than is reflected in the published ITE data, an Average Vehicle Occupancy (AVO) rate of 1.2 was assumed. The AVO rate was applied to the vehicle trip generation to estimate person trip generation.

- This mode-split data together with other existing transit ridership data was then used to establish a baseline mode-split that is felt to be representative for all non-CTR employment in the South Lake Union area. The following baseline mode-split values for the proposed development represent unmitigated values prior to implementation of a Transportation Management Program (TMP):

Transit/Bike/Walk:	10%
Carpool/Vanpool:	10%
SOV:	80%

[3] ITE, 2003.

- These values were applied to the Steps 1 and 2 trip generation estimates, which convert person-trips to vehicular trip generation based on local mode-split data. The resulting vehicle trip generation using local mode-split data is about 9 to 10 percent less than trip generation using ITE data for mostly suburban office uses. The resulting traffic generated by the proposal as shown in Table 6. The detailed calculation worksheets are provided in Attachment C.

As shown in Table 6, the *Alternative 2* initial phase, 450,000 square-feet, would generate approximately 3,635 daily trips. During the weekday AM peak hour, the *Alternative 2* initial phase would generate approximately 680 trips. During the weekday PM peak hour, the *Alternative 2* initial phase would generate approximately 640 trips.

Table 6. 2010 Initial Phase Net New Trip Generation – *Alternative 2*

Time Period	Daily	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Initial Phase Alternative 2	3,635	635	45	680	65	575	640

Distribution and Assignment

Traffic associated with the *Alternative 2* initial phase is expected to distribute to the surrounding local and regional facilities according to the percentages outlined in Table 7. This distribution pattern assumes peak hour project traffic would be primarily oriented to the regional transportation facilities in the area, particularly north and southbound I-5. Other primary routes would include 5th Ave. N., Westlake Ave. N., Fairview Ave. N., and Eastlake Ave. E. for local north/south traffic, SR 99 for regional north/south travel, and the Denny Way and Mercer Street corridors for travel east or west of the site.

The study area distribution patterns were derived based on the City of Seattle's Travel Demand Model (emme/2) model distribution patterns provided by SDOT and supplemented by model distribution data based on the regional PSRC emme/2 travel demand model. The trip distribution travel patterns to/from roads nearby the site were based on existing travel patterns and existing one-way street operations.

The inbound and outbound distribution patterns shown in Figures 6 and 7 were used to assign AM and PM peak hour traffic associated with the *Alternative 2* initial phase to the study area roadways and intersections. The assigned project trips for each block are illustrated in Figure 8.

Table 7. Project Trip Distribution

Route (To / From)	Percent
I-5 North (including SR 520)	20%
I-5 South (including I-90)	20%
SR 99 (Aurora) North	10%
SR 99 (Aurora) South	10%
Westlake North	5%
Eastlake North	5%
Mercer/Broad Street West	5%
Denny Way West	5%
Denny Way East	5%
Boren Ave South	5%
Westlake/9th/Bell South	10%
TOTAL	**100%**

Traffic Volume Impacts

Peak hour traffic volumes for the *Alternative 2* initial phase were developed by assigning the project-generated trips to the *Alternative 1* (No Action) initial phase peak hour traffic volumes at the study intersections. The resulting 2010 traffic volumes for the *Alternative 2* initial phase are illustrated in Figure 9. These volumes were then compared with the *Alternative 1* (No Action) initial phase traffic volumes. Tables 8 and 9 illustrate the percent impact of traffic generated by the *Alternative 2* initial phase at the study area intersections during weekday AM and PM peak hours.

Beyond the immediate study area, traffic generated by the *Alternative 2* initial phase would account for less than ten percent of the total entering traffic during the AM and PM peak hours. The portion of the study area bounded by 5th Ave. N., Harrison St., and Mercer St. would experience the greatest traffic impact, ranging from approximately 4 to 25 percent. This is due to their close proximity to the project sites.

During the weekday AM peak hour, the project impact at the most congested intersections range from 0.3 percent (5 trips) at the Howell St./Yale Ave. N. intersection, to 4.3 percent (168 trips) at the intersection of Denny Way/Aurora Ave. Peak hour traffic volumes typically vary on a daily basis and have been documented to fluctuate as high as 5 percent, yet the fluctuation is usually unnoticeable from a driver's perspective.

During the weekday PM peak hour, the project impact at the most congested intersections would be fewer than 5 percent with one exception. The intersection of Dexter Ave/Mercer St would be impacted by 7.4 percent (287 trips).

The percentages identified in Tables 8 and 9 show that the impacts of the *Alternative 2* initial phase would fall within the range of fluctuation that occurs as a result of background traffic at the majority of study intersections. For those intersections closest to the project sites that have a 4 to 25 percent impact, intersection operations were evaluated to determine whether additional measures would be needed to mitigate impacts of the *Alternative 2* initial phase, as described in the following sections.

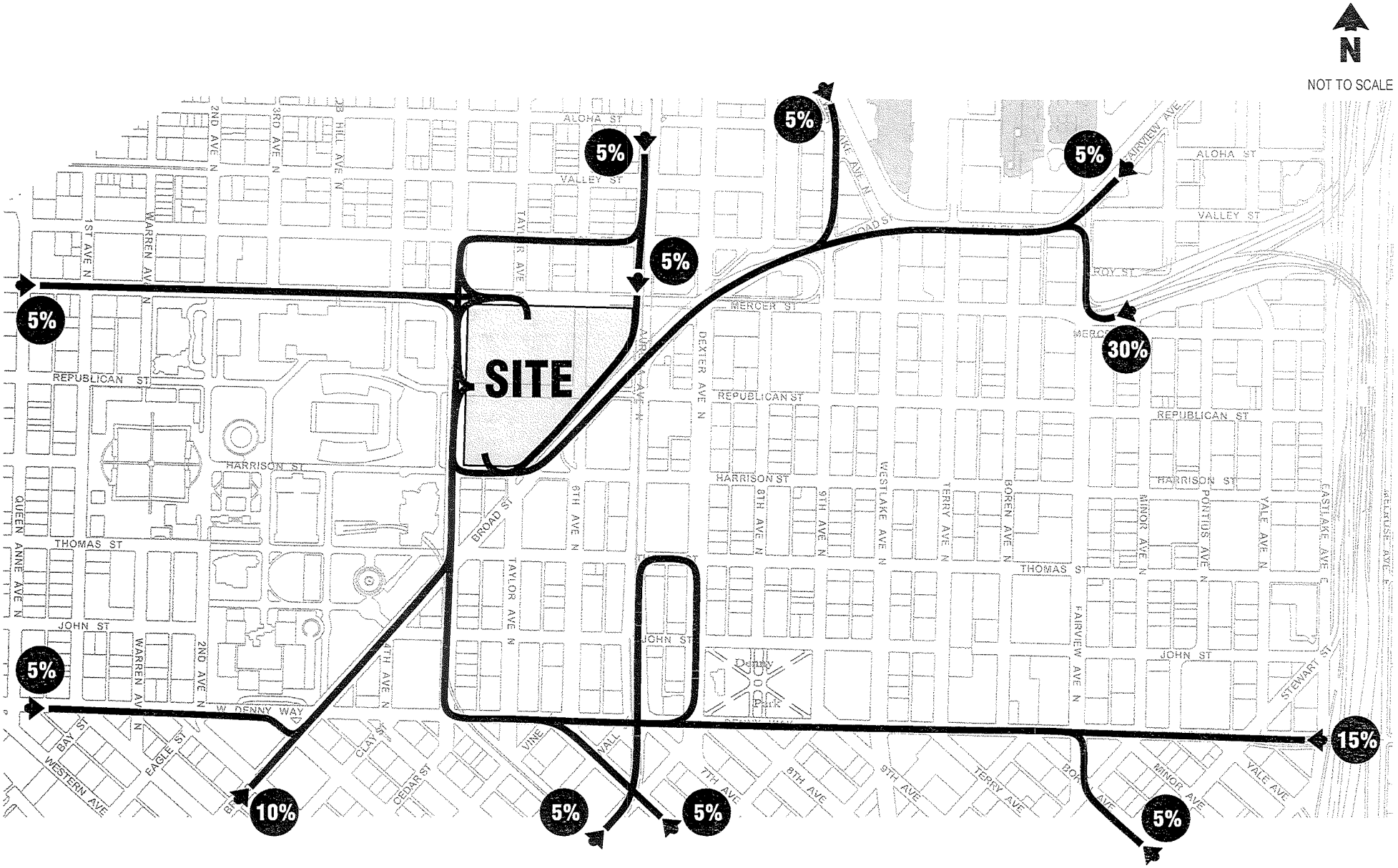

Figure 6
Inbound Project Trip Distribution

500 Fifth Avenue North

The Transpo Group

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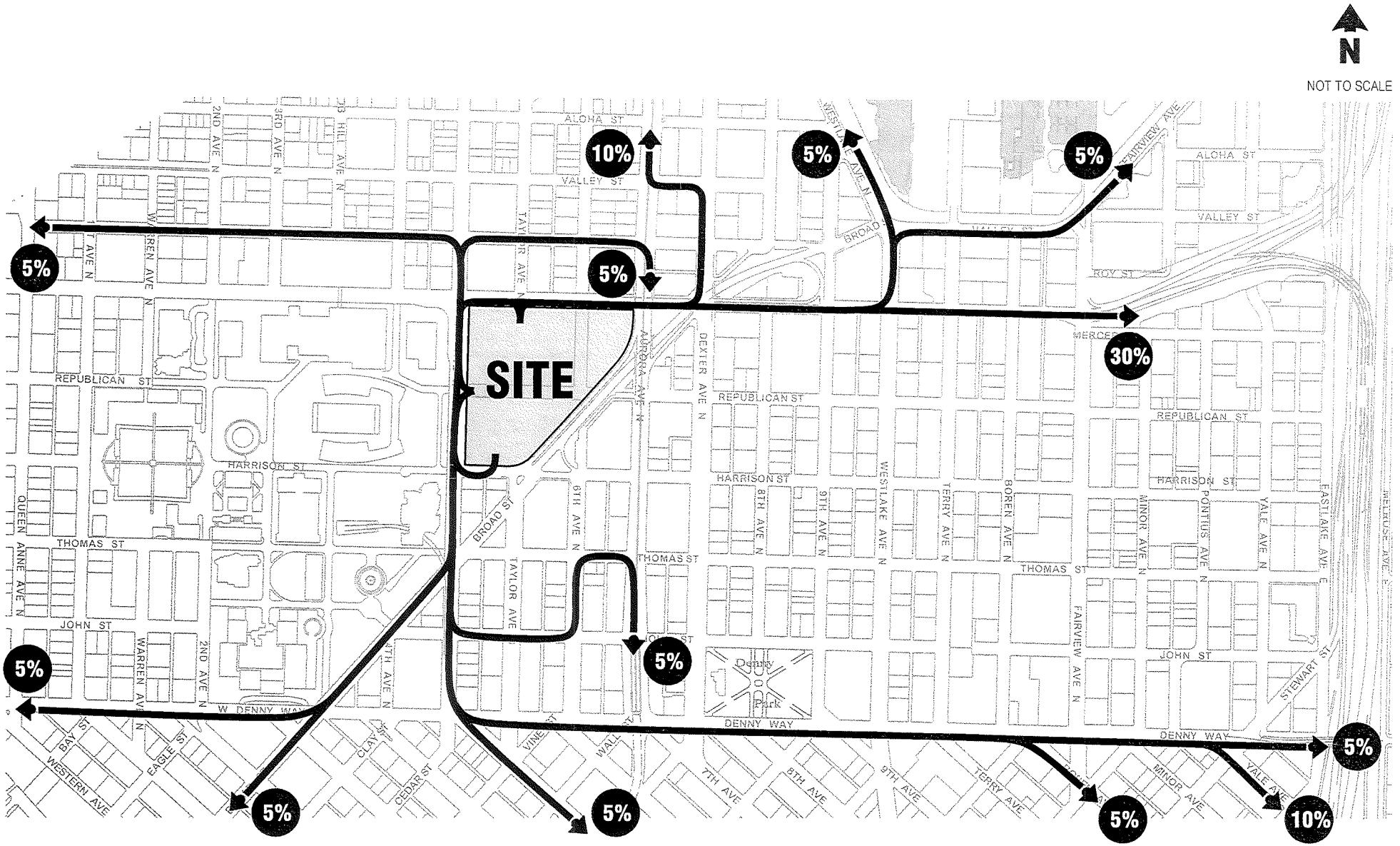

Figure 7
Outbound Project Trip Distribution

500 Fifth Avenue North

The Transpo Group

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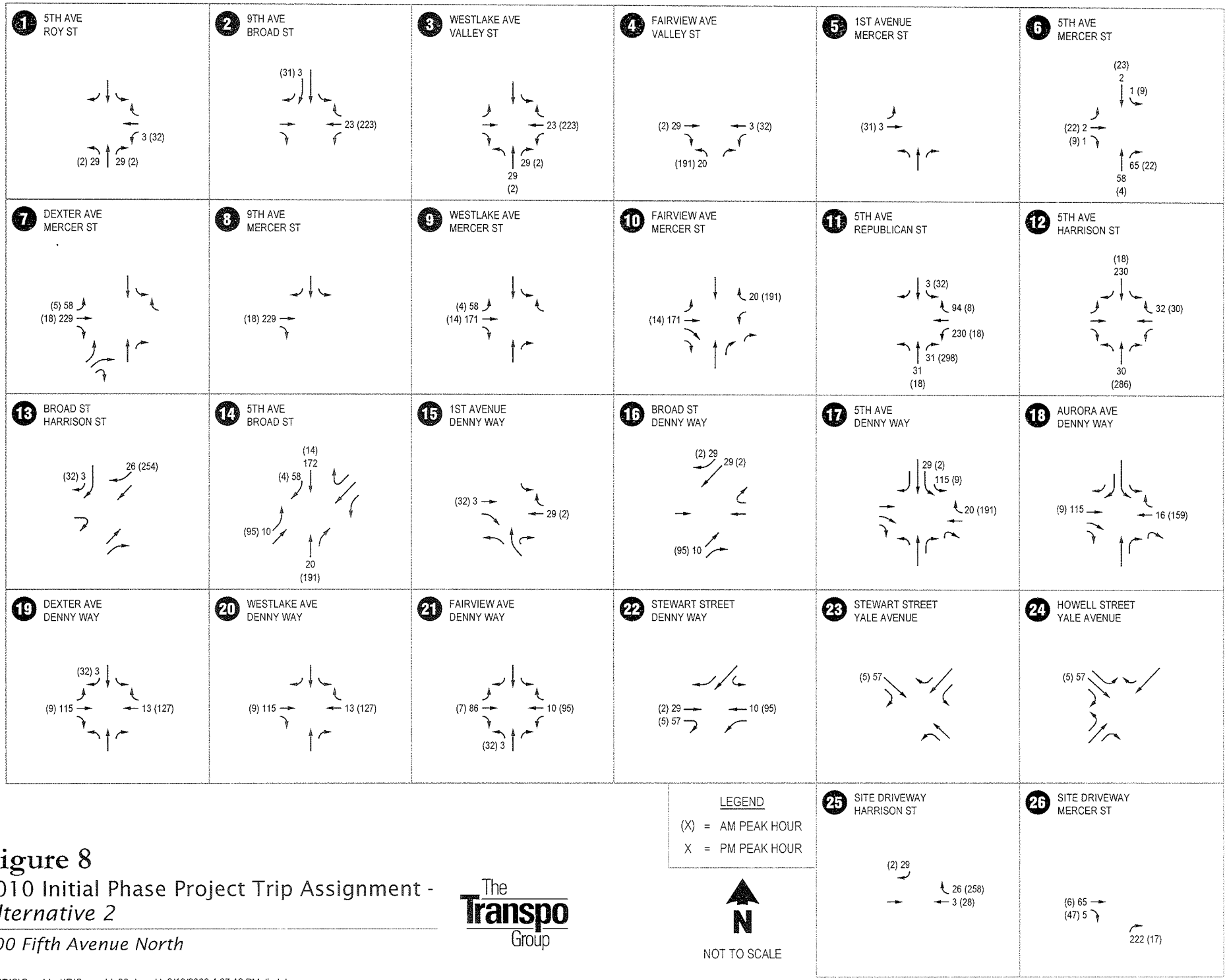

Figure 8

2010 Initial Phase Project Trip Assignment - *Alternative 2*

500 Fifth Avenue North

The Transpo Group

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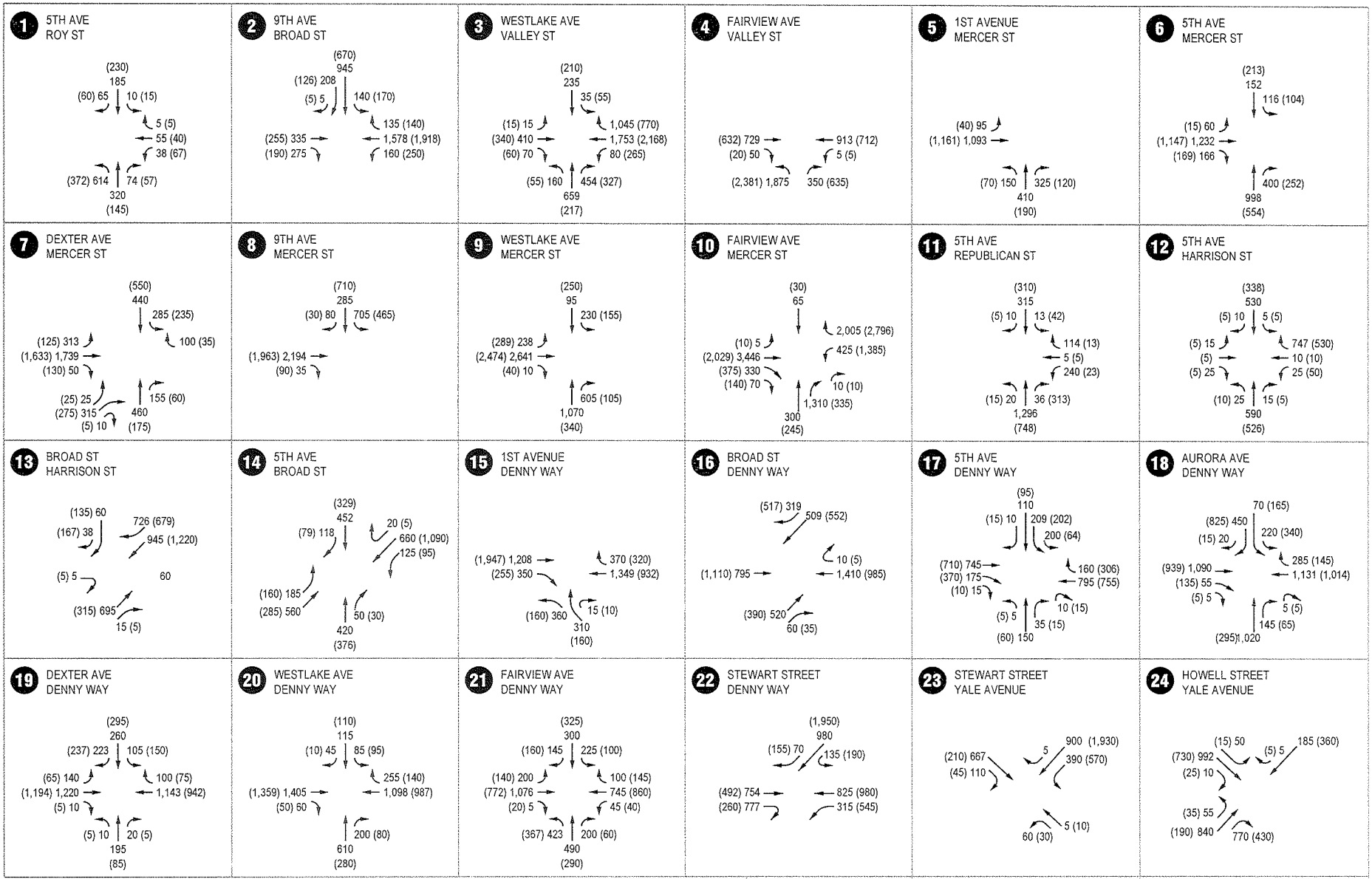

Figure 9

2010 Initial Phase With-Project Traffic Volumes - *Alternative 2*

500 Fifth Avenue North

The Transpo Group

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Table 8. 2010 Initial Phase AM Peak Hour Percent Project Impact – *Alternative 2*

	Intersection	Alternative 1 (No Action)	Alternative 2 Project Traffic	% Project Impact
1	5th Ave/Roy St	955	36	3.6%
2	9th Ave/Broad St	3,470	254	6.8%
3	Westlake Ave/Valley St	4,255	227	5.1%
4	Fairview Ave/Valley St	4,160	225	5.1%
5	1st Ave/Mercer St	1,550	31	2.0%
6	5th Ave/Mercer St	2,365	89	3.6%
7	Dexter Ave/Mercer St	3,225	23	0.7%
8	9th Ave/Mercer St	3,240	18	0.6%
9	Westlake Ave/Mercer St	3,635	18	0.5%
10	Fairview Ave/Mercer St	7,150	205	2.8%
11	5th Ave/Republican	1,100	374	25.4%
12	5th Ave/Harrison St	1,160	334	22.4%
13	Broad St/Harrison St*	2,240	286	11.3%
14	5th Ave/Broad St	2,145	304	12.4%
15	1st Ave/Denny Way	3,750	34	0.9%
16	Broad St/Denny Way	3,495	99	2.8%
17	5th Ave/Denny Way	2,420	193	8.0%
18	Aurora Ave/Denny Way	3,780	168	4.3%
19	Dexter Ave/Denny Way	2,890	168	5.5%
20	Westlake Ave/Denny Way	2,975	136	4.4%
21	Fairview Ave/Denny Way	3,145	134	4.1%
22	Stewart St/Denny Way	4,470	102	2.2%
23	Stewart St/Yale Ave	2,790	5	0.2%
24	Howell St/Yale Ave	1,785	5	0.3%

Table 9. 2010 Initial Phase PM Peak Hour Percent Project Impact – *Alternative 2*

	Intersection	Alternative 1 (No Action)	Alternative 2 Project Traffic	% Project Impact
1	5th Ave/Roy St	1,305	61	4.5%
2	9th Ave/Broad St	3,755	26	0.7%
3	Westlake Ave/Valley St	4,835	81	1.6%
4	Fairview Ave/Valley St	3,870	52	1.3%
5	1st Ave/Mercer St	2,070	3	0.1%
6	5th Ave/Mercer St	2,995	129	4.1%
7	Dexter Ave/Mercer St	3,605	287	7.4%
8	9th Ave/Mercer St	3,070	229	6.9%
9	Westlake Ave/Mercer St	4,660	229	4.7%
10	Fairview Ave/Mercer St	7,775	191	2.4%
11	5th Ave/Republican	1,660	389	19.0%
12	5th Ave/Harrison St	1,705	292	14.6%
13	Broad St/Harrison St*	2,515	29	1.1%
14	5th Ave/Broad St	2,330	260	10.0%
15	1st Ave/Denny Way	3,930	32	0.8%
16	Broad St/Denny Way	3,555	68	1.9%
17	5th Ave/Denny Way	2,455	164	6.3%
18	Aurora Ave/Denny Way	4,365	131	2.9%
19	Dexter Ave/Denny Way	3,295	131	3.8%
20	Westlake Ave/Denny Way	3,745	128	3.3%
21	Fairview Ave/Denny Way	3,855	99	2.5%
22	Stewart St/Denny Way	3,760	96	2.5%
23	Stewart St/Yale Ave	2,080	57	2.7%
24	Howell St/Yale Ave	2,850	57	2.0%

Traffic Operations Impacts

Traffic operations impacts include the consideration of changes in operations of study area intersections, as well as at the proposed site access at the points where it interfaces with abutting streets. This section also evaluates area-wide concurrency based on the City's screenline analysis.

Intersection Level of Service

Tables 10 and 11 provide a summary of the *Alternative 2* initial phase weekday AM and PM peak hour levels of service, respectively, for each block. For purposes of comparison, *Alternative 1* (No Action) initial phase levels of service are also provided.

Five of the signalized study intersections will continue to operate at LOS F with or without the *Alternative 2* initial phase. Project impacts to these locations are summarized below in terms of traffic volume impacts. When an intersection reaches LOS F, vehicle delay calculations are sensitive and may not provide a reliable measure of project impacts.

#9. Mercer St./Westlake Ave. N. This intersection would continue to operate at LOS F during the PM peak hour. Project traffic accounts for less than 5.0 percent of the PM peak hour entering volumes at this intersection. The South Lake Union Transportation Study has identified solutions to address both the existing and future operational deficiencies at this intersection.

#10. Mercer St./Fairview Ave. N. This intersection would continue to operate at LOS F with significant vehicle delay during both the AM and PM peak hours. Project traffic accounts for 2.5 percent or less of the peak hour entering traffic volumes at this location. The South Lake Union Transportation Study has identified solutions to address both the existing and future operational deficiencies at this intersection.

#18. Aurora Ave/Denny Way. This intersection would continue to operate at LOS F during the PM peak hour. Project traffic accounts for less than 3.0 percent of the PM peak hour entering volumes at this intersection.

#22. Stewart St./Denny Way. This intersection would continue to operate at LOS F during the AM peak hour. Project traffic accounts for 2.2 percent of the AM peak hour entering volumes at this intersection. Improvement options are limited due to capacity restraints and its close proximity to the I-5 entrance and exit.

#24. Howell St./Yale Ave. This intersection would continue to operate at LOS F during the PM peak hour. Project traffic accounts for 2.0 percent of the PM peak hour entering volumes at this intersection. Improvement options are limited due to capacity restraints and high traffic volumes entering I-5.

In addition to the intersections which are anticipated to operate at LOS F with or without *Alternative 2* initial phase, three of the signalized study intersections will continue to operate at LOS E with or without the *Alternative 2* initial phase.

#7. Mercer St./Dexter Ave. N. This intersection would continue to operate at LOS E during the PM peak hour. Project traffic accounts for 7.4 percent of the PM peak hour entering volumes at this intersection. The South Lake Union Transportation Study has identified solutions to address both the existing and future operational deficiencies at this intersection.

#21. Fairview Ave./Denny Way. This intersection would continue to operate at LOS E during the PM peak hour. Project traffic accounts for approximately 2.5 percent of the PM peak hour entering volumes at this intersection.

#24. Howell St./Yale Ave. This intersection would continue to operate at LOS E during the AM peak hour. Project traffic accounts for less than 1 percent of the AM peak hour entering volumes at this intersection. Improvement options are limited due to capacity restraints and high traffic volumes entering I-5.

During the AM peak hour, the addition of traffic generated by *Alternative 2* would cause the level of service at the following intersections to degrade:

- #2. 9th Ave/Broad St (LOS C to LOS D)
- #3. Westlake Ave/Valley St (LOS C to LOS D)
- #4. Fairview Ave/Valley St (LOS C to LOS D)
- #18. Aurora Ave/Denny Way (LOS D to LOS E)
- #21. Fairview Ave/Denny Way (LOS C to LOS D)

#18. Aurora Ave/Denny Way. This intersection would degrade operations from LOS D to LOS E during the AM peak hour. Average intersection delay at this intersection would increase by approximately 15 seconds as a result of the addition of approximately 168 project trips representing 4.3 percent of total traffic.

The Washington State Department of Transportation (WSDOT) and City of Seattle, as part of the larger Alaskan Way Viaduct replacement solution, are currently evaluating changes to SR 99 through the South Lake Union Neighborhood. The current proposal would lower SR 99 between Roy Street and Denny Way, and would reconnect several streets across SR 99, including Republican Street, Harrison Street, and Thomas Street.

In addition, the connections between SR 99 and the surface street network would be modified to provide additional access points at Roy Street and Republican Street. The Alaskan Way Viaduct project is not anticipated to be complete until beyond 2010, so was not included in the evaluation of project impacts for the *Alternative 2* initial phase. However, when complete, the Alaskan Way Viaduct project could relieve congestion at the Aurora Ave/Denny Way intersection, through the provision of the additional access ramps.

The remaining study intersections would operate at the same level of service as with the *Alternative 1* (No Action) initial phase during the AM peak hour.

During the PM peak hour, the addition of project traffic associated with the *Alternative 2* initial phase would cause the LOS at the following intersections to degrade:

- #3. Westlake Ave/Valley St (LOS D to LOS E)
- #11. 5th Ave/Republican St (LOS A to LOS B)
- #14. 5th Ave/Broad St (LOS C to LOS B)
- #17. 5th Ave/Denny Way (LOS B to LOS C)
- #22. Stewart St/Denny Way (LOS D to LOS E)

#3. Westlake Ave./Valley St. This intersection is forecast to operate at LOS E in the PM peak hour with the *Alternative 2* initial phase, compared to LOS D with the *Alternative 1* (No Action) initial phase. Average intersection delay at this intersection would increase by approximately 6 seconds as a result of the addition of approximately 81 project trips representing 1.6 percent of total traffic.

#22. Stewart St./Denny Way. This intersection is forecast to operate at LOS E in the PM peak hour with the *Alternative 2* initial phase, compared to LOS D with the *Alternative 1* (No Action) initial phase. This intersection serves as the gateway to downtown Seattle from I-5 and currently operates, and will continue to operate at LOS F during the AM peak hour.

The remaining study intersections would operate at the same level of service as with the *Alternative 1* (No Action) initial phase during the PM peak hour.

Table 10. 2010 Initial Phase AM Peak Hour LOS Summary – *Alternative 2*

#	Intersection	Alternative 1 (No Action)			Alternative 2		
		LOS[1]	Delay[2]	V/C or WM[3]	LOS	Delay	V/C or WM
1	5th Ave/Roy St	C	26.5	0.51	C	27.1	0.53
2	9th Ave/Broad St	C	29.5	0.95	D	44.0	1.03
3	Westlake Ave/Valley St	C	23.7	0.88	D	41.8	0.95
4	Fairview Ave/Valley St	C	33.2	0.86	D	35.6	0.91
5	1st Ave/Mercer St	B	14.2	0.50	B	14.4	0.51
6	5th Ave/Mercer St	D	43.5	0.45	D	44.8	0.46
7	Dexter Ave/Mercer St	D	44.1	0.82	D	44.8	0.82
8	9th Ave/Mercer St	C	27.6	0.76	C	27.5	0.77
9	Westlake Ave/Mercer St	C	21.7	0.81	C	22.9	0.81
10	Fairview Ave/Mercer St	F	>120.0	1.25	F	>120.0	1.34
11	5th Ave/Republican	A	9.7	0.18	A	7.5	0.28
12	5th Ave/Harrison St	C	34.2	0.36	C	31.4	0.46
13	Broad St/Harrison St*	C	19.0	EB	C	22.5	EB
14	5th Ave/Broad St	D	47.6	0.53	D	47.3	0.61
15	1st Ave/Denny Way	B	14.8	0.81	B	15.6	0.82
16	Broad St/Denny Way	C	20.4	0.76	C	20.8	0.76
17	5th Ave/Denny Way	B	13.1	0.60	B	13.7	0.61
18	Aurora Ave/Denny Way	D	45.3	0.92	E	60.1	0.96
19	Dexter Ave/Denny Way	B	15.9	0.67	B	17.1	0.69
20	Westlake Ave/Denny Way	B	14.5	0.68	B	14.6	0.68
21	Fairview Ave/Denny Way	C	34.7	0.80	D	40.5	0.85
22	Stewart St/Denny Way	F	90.7	1.14	F	97.3	1.12
23	Stewart St/Yale Ave	A	5.2	–[5]	A	5.3	–[5]
24	Howell St/Yale Ave	E	66.7	1.04	E	68.3	1.05

1. Level of service, based on 2000 HCM methodology.
2. Average delay per vehicle, in seconds.
3. V/C = Volume-to-capacity ratio for signalized intersections, WM= worst movement/approach for unsignalized intersections.
4. Based on the v/c ratio of greater than 1.20, vehicle delay at this intersection may be greater than reported in the table.
5. Intersection runs on controller at Stewart/Denny; resulting v/c ratio not applicable to this intersection.

* Unsignalized intersection

As Tables 10 and 11 indicate, the addition of project traffic increases delay at the majority of study intersections, which is typical when intersection volumes increase. However at seven study intersections (#11 and #12 during the AM peak hour, #7, #13, and #15 during the PM peak hour, and #8 and #14 during both the AM and PM peak hours) the v/c ratio typically increases while the delay decreases compared to the *Alternative 1* (No Action) initial phase. This is the result of project trips being added to the non-critical movements at these intersections, which in turn results in reduced average vehicle delays for the intersection overall.

Table 11. 2010 Initial Phase PM Peak Hour LOS Summary – *Alternative 2*

		Alternative 1 (No Action)			Alternative 2		
#	Intersection	LOS[1]	Delay[2]	V/C or WM[3]	LOS	Delay	V/C or WM
1	5th Ave/Roy St	C	20.1	0.66	C	22.7	0.69
2	9th Ave/Broad St	C	25.4	0.92	C	25.5	0.93
3	Westlake Ave/Valley St	D	50.6	1.16	E	56.8	1.18
4	Fairview Ave/Valley St	C	28.9	0.77	C	29.4	0.79
5	1st Ave/Mercer St	B	19.0	0.63	B	19.0	0.64
6	5th Ave/Mercer St	C	26.5	0.63	C	26.8	0.65
7	Dexter Ave/Mercer St	E	68.3	1.04	E	68.1	1.10
8	9th Ave/Mercer St	C	30.2	0.69	C	30.1	0.73
9	Westlake Ave/Mercer St	F	106.2	1.09	F	>120.0	1.14
10	Fairview Ave/Mercer St	F	>120.0	1.35	F	>120.0	1.39
11	5th Ave/Republican	A	3.4	0.31	B	11.0	0.49
12	5th Ave/Harrison St	C	30.2	0.58	C	30.3	0.61
13	Broad St/Harrison St*	C	18.0	EB	C	17.7	EB
14	5th Ave/Broad St	C	21.4	0.55	B	19.6	0.56
15	1st Ave/Denny Way	B	15.9	0.78	B	14.9	0.75
16	Broad St/Denny Way	C	20.6	0.71	C	21.6	0.73
17	5th Ave/Denny Way	B	16.0	0.61	C	20.7	0.69
18	Aurora Ave/Denny Way	F	>120.0	1.13	F	>120.0	1.14
19	Dexter Ave/Denny Way	B	16.3	0.80	B	17.6	0.86
20	Westlake Ave/Denny Way	C	22.0	0.85	C	23.3	0.90
21	Fairview Ave/Denny Way	E	55.3	0.90	E	56.8	0.89
22	Stewart St/Denny Way	D	53.7	1.00	E	64.1	1.03
23	Stewart St/Yale Ave	B	15.5	–[5]	B	19.8	–[5]
24	Howell St/Yale Ave	F	>120.0	1.34	F	>120.0	1.39

1. Level of service, based on 2000 HCM methodology.
2. Average delay per vehicle, in seconds.
3. V/C = Volume-to-capacity ratio for signalized intersections, WM= worst movement/approach for unsignalized intersections.
4. Based on the v/c ratio of greater than 1.20, vehicle delay at this intersection may be greater than reported in the table.
5. Intersection runs on controller at Stewart/Denny; resulting v/c ratio not applicable to this intersection.

* Unsignalized intersection

Site Access

Three points of ingress and egress would be provided for the *Alternative 2* initial phase. As described previously, access to the Seattle Center Parking Garage would be provided via the signalized intersection of 5th Ave./Republican St., with a secondary access provided from Harrison St., via a right-in/right-out only driveway. Access to the parking structure beneath the *Alternative 2* initial phase is proposed to also be provided from the signalized intersection of 5th Ave./Republican St. via a subterranean connection through the Seattle Center Garage. A secondary, right-in/right-out only access to the parking structure beneath the *Alternative 2* initial phase is proposed to be provided from Mercer Street, in the vicinity of Taylor Avenue. A driveway currently exists in the vicinity of the

proposed Mercer Street driveway. The existing driveway is only opened after events at Seattle Center when the surface parking lot has been heavily utilized, and provides right-turn only exit to Mercer Street. The proposed driveway, which will be open at all times, will allow right-turns to and from Mercer Street. A LOS analysis was conducted for each site access intersections for the AM and PM peak hours.

Table 12 summarizes the weekday AM and PM peak hour levels of service for the site access intersections that would serve as access to the *Alternative 2* initial phase.

Table 12. 2010 Initial Phase Driveway LOS Summary – *Alternative 2*

Intersection	Alternative 2		
	LOS[1]	Delay[2]	V/C or WM[3]
AM Peak Hour			
5th Avenue/Republican St	A	7.5	0.28
South Driveway/Harrison St	B	10.6	SB
North Driveway/Mercer St	B	11.5	NB
PM Peak Hour			
5th Avenue/Republican St	B	11.0	0.49
South Driveway/Harrison St	B	10.3	SB
North Driveway/Mercer St	C	17.7	NB

1. Level of service, based on 2000 HCM methodology.
2. Average delay per vehicle, in seconds.
3. V/C = Volume-to-capacity ratio for signalized intersections, WM= worst movement/approach for unsignalized intersections.

As shown in Table 12, all three site access intersections are estimated to operate at LOS C or better during both the AM and PM peak hours. The results indicate the site access intersections would provide adequate capacity for the *Alternative 2* initial phase.

In addition to the analysis of the site access intersections, vehicle queuing and individual movement levels of service were examined at the intersections directly adjacent to the site access intersections to determine how they interact with each other. During the AM peak hour the driveway approach at the 5th Ave/Republican St intersection would operate at LOS D, but with vehicle queues of approximately two vehicles. The Harrison Street driveway is anticipated to operate at LOS B during the AM peak hour, as shown in Table 12, with minimal vehicle queues on the driveway approach. However, it is anticipated that the westbound right-turn queue from the 5th Ave/Harrison St signal would extend beyond the driveway intersection, at times blocking the Harrison St driveway during the AM peak hour. No blocking issues are anticipated at the 5th Ave/Republican St intersection during the AM peak hour.

During the PM peak hour, the driveway approach to the 5th Ave/Republican St intersection is anticipated to operate at LOS C, however due to higher PM peak hour outbound traffic volumes, on-site vehicle queues are anticipated to extend for approximately 175 feet. As shown in Table 12, the Harrison Street driveway approach is anticipated to operate at LOS B with minimal vehicle queuing. The westbound queue from the 5th Ave/Harrison St intersection is anticipated to block the Harrison Street driveway during the PM peak hour, however, this queue is anticipated to be shorter during the PM peak hour than in the AM peak hour so would block the driveway less frequently and for shorter time periods. No blocking issues are anticipated at the 5th Ave/Republican St intersection during the PM peak hour.

Transportation Concurrency

The City has implemented a Transportation Concurrency Project Review System to comply with one of the requirements of the Washington State Growth Management Act (GMA). The system, as described in DCLU's Director's Rule 4-99[4] and the City's *Land Use and Zoning Code*, is designed to provide a mechanism that would determine whether adequate transportation facilities would be available "concurrent" with proposed development projects.

Five screenlines were chosen for review, based on their location in relationship to the project sites and estimated influence areas. The screenlines that were analyzed for concurrency review include the Magnolia and Ship Canal Bridges and South Lake Union, as shown in Table 13.

Table 13. 2010 Initial Phase Concurrency Analysis – *Alternative 2*

SL[1] Number	Location	Direction[2]	Capacity	1998 Volume	V/C Standard	Alternative 2	
						Project Traffic	V/C
2	Magnolia	EB	4,480	2,130	1.00	6	0.48
		WB	4,480	2,820	1.00	51	0.64
5.12	Fremont Bridge	NB	2,000	2,070	1.20	26	1.05
		SB	2,000	1,270	1.20	2	0.64
5.13	Aurora Avenue	NB	4,950	4,908	1.20	51	1.00
		SB	4,950	3,195	1.20	9	0.65
5.16	University and Montlake Bridges	NB	4,300	3,820	1.20	152	0.92
		SB	4,300	3,630	1.20	15	0.85
8	South of Lake Union	EB	6,500	4,920	1.20	278	0.80
		WB	4,100	3,300	1.20	30	0.81

1. *SL = Screen Line*
2. *Direction: NB = Northbound, SB = Southbound, EB = Eastbound, WB = Westbound*

The transportation concurrency analysis indicates that with traffic generated by the *Alternative 2* initial phase, the screenlines would have v/c ratios that are less than the City level of service threshold and thus, the conditions would meet concurrency requirements.

Transit Impacts

Without site specific programs like a Transportation Management Program (TMP) or Commute Trip Reduction (CTR), the transit mode split is expected to represent about 10 percent of total person trips generated by the *Alternative 2* initial phase. Under the *Alternative 2* initial phase, approximately 430 daily transit trips would be generated by the development. Of those, approximately 80 transit trips would occur during the AM peak hour and approximately 75 transit trips during the PM peak hour.

Through the implementation of a TMP program, transit ridership is anticipated to increase from 10 percent to between 15 and 30 percent. This would result in the *Alternative 2* initial phase generating

[4] Seattle DCLU, 1999

up to 1,295 daily transit trips, with approximately 240 occurring during the AM peak hour, and 225 during the PM Peak hour.

Existing transit routes serving the site vicinity provide regular service. The nearest stops are located north and south of the site on 5th Ave. N., and along Aurora Ave. N. These stops serve Routes 3N, 4N, 5, 16, 26, 28, 82, and 358, providing service to Downtown Seattle, Rainier Beach, University District, Northgate, Lake City, Shoreline, White Center and other local and regional locations. From these stops, transit service can be taken to destinations throughout the region. South of the site on Broad St., Routes 3S, 4S, and 74 are served by a westbound stop near 5th Ave. N. In addition, it is possible that some Foundation employees would likely use the existing Seattle Center Monorail to travel between the project site and downtown Seattle. However, no noticeable numbers of Foundation employees were assumed to use the proposed South Lake Union Streetcar, due to the distance between the two, and location of Aurora Avenue. All of the routes provide service during the morning and afternoon commuter peaks. Existing transit service is expected to accommodate the additional demand generated by the *Alternative 2* initial phase with or without a TMP program and, therefore, no significant adverse impacts to transit operations are expected to occur.

Non-Motorized Travel Impacts

As part of the *Alternative 2* initial phase the existing sidewalks on each project site frontage would be improved. The *Alternative 2* initial phase would also provide secure bicycle storage on the project site.

Existing non-motorized facilities within the study area are expected to accommodate the portion of the *Alternative 2* initial phase trip generation that is expected to walk or bike to the project site. The *Alternative 2* initial phase would not degrade any existing facilities; the redevelopment would enhance those facilities directly adjacent to each site. Thus, no significant adverse impacts to non-motorized facilities or operations are expected to occur as a result of the *Alternative 2* initial phase of development.

Safety Impacts

Adding *Alternative 2* initial phase traffic volumes to study intersections and roadways would likely cause a proportionate increase in the probability of traffic accidents. Therefore, it is possible that the proportionate increase in traffic at the intersections of Mercer St/5th Avenue, Mercer St/9th Avenue, and Denny Way/Westlake Ave. N. may impact the existing safety hazard at these HAL locations.

Parking Impacts

The analysis of parking impacts associated with the initial phase is based on the development of 420,000 square-feet, compared with the 450,000 square-feet analyzed in the previous sections. The reduced square-footage used in the parking analysis is more representative of the current design for the initial phase, and reflects the desire for the project not to construct excess parking supply.

Code Requirements

The City of Seattle parking code requires a minimum of 1.0 stall per 1,000 gsf office space. The minimum parking supply required by the *Alternative 2* initial phase to meet City of Seattle parking code requirements would be 420 stalls. As part of the initial phase of construction, 204 spaces would be built on-site. Seattle Center has agreed to provide 300 spaces for campus use by covenant. Of the 300 spaces, 54 would be allocated to the visitor learning center and retail located in the garage, with the remaining 246 spaces allocated to the campus. The proposed on-site parking stalls and the agreed

leased stalls in the Seattle Center Parking Garage count towards meeting the code requirement. The on-site and covenanted parking supply, 450 stalls (204+246) for the *Alternative 2* initial phase would exceed the code requirement of 420 spaces.

Parking Supply

On-site parking is proposed both below the *Alternative 2* initial phase building(s), and in the proposed Seattle Center Parking Garage. A total of approximately 204 parking stalls are proposed as part of the *Alternative 2* initial phase. In addition to the approximately 204 spaces being provided on-site, the Seattle Center has agreed to provide a covenant for 246 stalls in the Seattle Center Parking Garage for exclusive daily use (up to 6:00 pm Monday through Friday) by the Foundation. For the *Alternative 2* initial phase a total parking supply of 450 parking stalls would be available.

Parking Demand

Parking demand for the *Alternative 2* initial phase was calculated considering the size, typical employee density, daily occupancy, and travel mode split of the proposed project. This component yields a demand for long-term commuter parking. The mode-split assumptions are consistent with those identified in the travel mode split section of the *Alternative 2* initial phase trip generation analysis, which was summarized previously in Table 6. In addition, short-term parking demand required by office use is also considered and is based on rates consistent with previously accepted rates for numerous other Seattle development projects. Calculation worksheets for the parking demand analysis are provided in Attachment D to this technical report.

Peak parking demand for the *Alternative 2* initial phase would total 1,033 parking stalls. Assuming a total of 450 parking spaces for the *Alternative 2* initial phase would have an effective supply of 95 percent, or 428 spaces, the peak demand would exceed supply by 605 parking stalls in the unmitigated scenario of the *Alternative 2* initial phase[5]. A Transportation Management Plan (TMP), as discussed in the Mitigation section, could reduce the parking demand by as much as 301 stalls. The calculation worksheets provided in Attachment D illustrate the effect of the TMP goals. Therefore, with a TMP in place, parking demand associated with the *Alternative 2* initial phase would not be able to be accommodated within the proposed parking supply. A review of parking utilization in the adjacent Seattle Center and Seattle School District parking facilities indicates that there is a sufficient weekday daytime parking supply is available on all but approximately three days per year.

Table 14. Alternative 2 Initial Phase Parking Summary

Alternative/Phase	Proposed Parking Supply	Parking Code Regulations	Practical Parking Supply[1]	Parking Demand	Parking Surplus/ Deficit[2]
Base Mode Split Assumptions					
Alternative 2 Initial Phase	450	420	428	1,033	-605
Moderate TMP Assumptions					
Alternative 2 Initial Phase	450	420	428	942	-514
Aggressive TMP Assumptions					
Alternative 2 Initial Phase	450	420	428	732	-304

1. Assumes a 5% reduction to account for the practical capacity of the parking supply.
2. A parking deficit is indicated by a negative number, a parking surplus is shown by a positive number.

[5] The 428-space amount is based on the total 450 stalls reduced factored by a practical capacity factor that takes into account the efficiency lost by circulating the garage in search of a vacant stall.

Construction Impacts

Construction of the *Alternative 2* initial phase, beginning in the first or second quarter of 2008, would generate truck and vehicle traffic associated with earthwork and excavation, delivery of materials to the site and similar types of activities. The highest concentration of truck traffic expected to occur during construction would coincide with the earthwork and excavation activities. Preliminary estimates indicate that approximately 150,000 to 190,000 cubic yards of material would be removed in conjunction with the *Alternative 2* initial phase. This is estimated to generate approximately 15,000 truck trips over an eight to sixteen week time frame. Given the estimated construction schedule, the amount of traffic would equate to between 200 and 400 trips per day, depending upon the number of weeks and the number of days per week which excavation would occur. Truck traffic would be substantially less during the remaining periods of construction. The amount of traffic associated with construction, however, is expected to be less than the total development related traffic volumes anticipated.

Construction employees would be required to park off-site in neighboring parking garages or parking lots (including the Seattle Center Parking Garage). Once on-site parking is completed and approved, some construction employees could park on-site for the duration of the construction.

While construction may cause inconveniences proximate to the site, the impacts would be temporary and are not expected to extend to the surrounding study area. To minimize potential impacts, specific routing plans and scheduling could be identified through a construction vehicle routing plan and coordination with SDOT.

Alternative 3 Initial Phase

The development proposed to occur under the *Alternative 3* initial phase would include the same characteristics as the development identified for the *Alternative 2* initial phase. Therefore, the impact associated with the *Alternative 3* initial phase would be consistent with those documented above for the *Alternative 2* initial phase.

Alternative 4 Initial Phase

The development proposed to occur under the *Alternative 4* initial phase would include the same characteristics as the development identified for the *Alternative 2* initial phase. It is not anticipated that the improvements planned for Mercer Street, 6th Avenue, or Aurora Avenue would be complete prior to 2010. Therefore, the impact associated with the *Alternative 4* initial phase would be consistent with those documented above for the *Alternative 2* initial phase.

Area Transportation Impacts

Additional traffic generated by the initial phase *Alternatives* is not anticipated to cause any additional study intersections to degrade to LOS F with the addition of project traffic. However, the addition of project traffic volumes at those intersections which already operate at LOS F with the *Alternative 1* (No Action) initial phase may increase delay during the AM and PM peak hours.

A number of traffic and intersection improvements are proposed by the City of Seattle in the vicinity of the project site. Two intersection improvements proposed as part of the South Lake Union Transportation Plan, and one as part of the Alaskan Way Viaduct project would reduce the impacts

of this project that were identified through the level of service analysis. The following list identifies the impact of the project and potential improvements at these intersections:

- **#9. Westlake Ave/Mercer St** (PM peak hour only) – this intersection would continue to operate at LOS F during the PM peak hour with or without the initial phase project *Alternatives*. Improvements for this intersection have been identified as part of the South Lake Union Transportation Plan.

- **#10. Fairview Ave/Mercer St** (AM and PM peak hours) – this intersection would continue to operate at LOS F during both the AM and PM peak hours with or without the initial phase project *Alternatives*. Improvements for this intersection have been identified as part of the South Lake Union Transportation Plan.

- **#18. Denny Way/Aurora Ave** (PM peak hour only) would continue to operate at LOS F during PM peak hour with or without the initial phase project *Alternatives*. Improvements for this intersection have been identified as part of the Aurora Avenue improvements included in the Alaskan Way Viaduct project, however this project is not anticipated to be completed prior to year 2010.

Impacts of the 2025 Build-Out Project Alternatives

This section of the technical report describes the expected traffic and parking conditions within the study area for both of the build-out project alternatives. The impacts associated with the build-out of the project alternatives are evaluated for a horizon year of 2025.

Alternative 1 Build-Out (No Action)

This section of the technical report describes expected traffic and parking conditions within the study area if no new development were to occur on the project site. The *Alternative 1* (No Action) build-out assumes that the existing land uses, structures, parking, and driveways would remain and provides a baseline for comparing each of the development alternatives. The traffic, circulation, and parking analysis for the *Alternative 1* (No Action) build-out was conducted for AM and PM peak hour conditions in the year 2025, consistent with the year of the *Alternative 2*, *3*, and *4* build-out.

2025 Planned Improvements

- Roadway Improvements - No additional planned improvements were identified beyond those documented in the 2010 initial phase section of this report, except the Alaskan Way Viaduct project could commence after 2010. As part of the larger Alaskan Way Viaduct replacement solution, WSDOT and the City of Seattle are currently evaluating changes to SR 99 through the South Lake Union Neighborhood. The current proposal would lower SR 99 between Roy Street and Denny Way, and would reconnect several streets across SR 99, including Republican Street, Harrison Street, and Thomas Street.
- Rail and Transit Improvements - No additional planned improvements were identified beyond those documented in the 2010 initial phase section of this report.
- Non-Motorized Improvements - No additional planned improvements were identified above and beyond those documented in the 2010 initial phase section of this report.

It is noted that some of the projects identified in the South Lake Union Transportation Plan, and components of the Alaskan Way Viaduct may be partially or fully constructed by 2025. However, funding is not currently assured, thus this analysis did not rely on these improvements, to be conservative. The exception to this is that the analysis of the *Alternative 4* build-out assumes the improvements planned for Mercer Street and Aurora Avenue in the design of the campus.

Traffic Volumes

The 2025 AM and PM peak hour traffic volumes used in the analysis of the *Alternative 1* (No Action) are comprised of existing traffic, background traffic growth, and traffic generated from specific planned developments anticipated by the year 2025. To enable this document to identify all the impacts associated with the *Alternative 2*, *3*, and *4* build-out, the traffic generated by the *Alternative 2* initial phase was not included in 2025 *Alternative 1* (No Action) traffic volumes. The methodology used to estimate 2025 peak hour traffic volumes for the analysis of the project build-out is consistent with that used in the analysis of the initial phase. An annually compounded growth rate of 0.5 percent was applied to existing (year 2005) peak hour volumes to account for general traffic growth

in the study area projected by the year 2025. In addition, AM and PM peak hour traffic generated by planned development projects, also called "pipeline projects," were identified within the general vicinity.

The pipeline projects remain unchanged from those included in the analysis of the initial phase. However, to account for the more distant horizon year, and to reflect that additional, although currently unidentified pipeline projects would likely be constructed by 2025, the 25 percent reduction in pipeline project traffic was not taken for this analysis.

Adjustments were again made to account for the construction of the proposed South Lake Union streetcar project which is anticipated to be complete by 2007. As mentioned previously, the streetcar requires the conversion of Westlake to two-way operations, and the conversion of Terry to one-way northbound operations between Mercer and John Streets. Adjustments were made to local travel patterns to reflect these changes.

The peak hour traffic from pipeline projects, added together with the background 0.5 percent annual growth in existing traffic, and the adjustments made to reflect the changes proposed to accommodate the streetcar, result in estimated 2025 *Alternative 1* (No Action) traffic volumes. Figure 10 summarizes the traffic volumes that would occur during the AM and PM peak hour periods for the *Alternative 1* (No Action) in 2025.

Traffic Operations

Weekday peak hour intersection levels of service (LOS) were calculated for each of the study intersections for the *Alternative 1* (No Action) build-out. Adjustments were made to the traffic operations analysis to reflect the proposed changes to the local street system to account for the construction of the proposed South Lake Union streetcar project which is anticipated to be complete by 2007. As mentioned previously, the streetcar requires the conversion of Westlake to two-way operations, and the conversion of Terry to one-way northbound operations between Mercer and John Streets. Adjustments were made to the local street system to reflect these changes for the LOS analysis.

At those study intersections not located along the proposed streetcar route, the intersection LOS analysis inputs (cycle length, number of lanes, phasing, etc.) remained unchanged from those used for the LOS analysis of existing conditions. The only exception is for intersections with actuated signals, in which case the green times were re-optimized based on the 2025 *Alternative 1* (No Action) weekday AM and PM peak hour traffic volumes. Tables 15 and 16 respectively provide a summary of AM and PM peak hour levels of service, delays, and v/c ratios at study intersections for the *Alternative 1* (No Action) build-out.

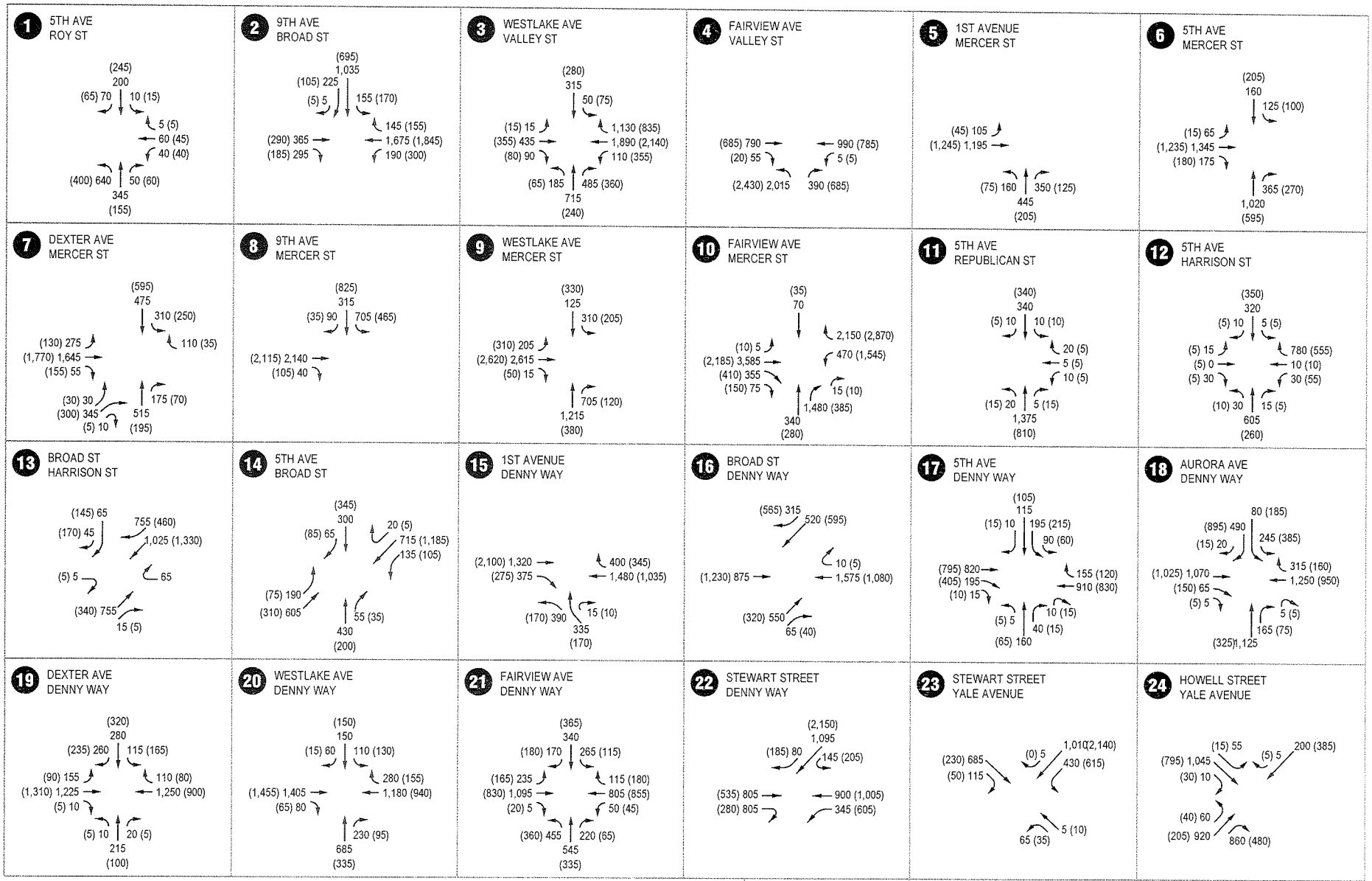

Figure 10

2025 Build-Out Traffic Volumes - *Alternative 1* (No Action)

500 Fifth Avenue North

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Table 15. 2025 Build-Out AM Peak Hour LOS Summary – *Alternative 1* (No Action)

		2005 Existing			2025 Alternative 1 (No Action)		
#	Intersection	LOS[1]	Delay[2]	V/C or WM[3]	LOS	Delay	V/C or WM
1	5th Ave/Roy St	C	25.9	0.49	C	28.0	0.55
2	9th Ave/Broad St	D	36.1	0.95	D	42.3	1.02
3	Westlake Ave/Valley St	B	11.2	0.51	D	35.2	1.11
4	Fairview Ave/Valley St	C	29.1	0.76	D	39.9	0.95
5	1st Ave/Mercer St	B	13.5	0.45	B	15.1	0.56
6	5th Ave/Mercer St	D	39.4	0.42	D	46.0	0.49
7	Dexter Ave/Mercer St	D	41.9	0.74	D	50.1	0.90
8	9th Ave/Mercer St	B	19.7	0.71	D	39.2	0.84
9	Westlake Ave/Mercer St	A	8.1	0.62	C	26.8	0.90
10	Fairview Ave/Mercer St	F	87.3	1.07	F	>120.0	1.40
11	5th Ave/Republican	A	8.8	0.16	A	9.9	0.20
12	5th Ave/Harrison St	C	33.2	0.29	C	34.1	0.39
13	Broad St/Harrison St*	C	17.9	EB	C	20.9	EB
14	5th Ave/Broad St	D	44.2	0.52	E	57.6	0.58
15	1st Ave/Denny Way	B	12.2	0.75	C	23.2	0.88
16	Broad St/Denny Way	B	18.0	0.66	C	25.3	0.85
17	5th Ave/Denny Way	B	13.3	0.53	B	13.9	0.66
18	Aurora Ave/Denny Way	C	27.8	0.75	F	80.6	1.02
19	Dexter Ave/Denny Way	B	14.0	0.51	B	18.1	0.81
20	Westlake Ave/Denny Way	A	7.1	0.51	B	18.8	0.80
21	Fairview Ave/Denny Way	C	28.5	0.63	D	51.1	0.91
22	Stewart St/Denny Way	D	45.2	0.99	F	>120.0	1.26
23	Stewart St/Yale Ave	A	4.5	–[5]	A	6.1	–[5]
24	Howell St/Yale Ave	D	48.1	0.91	F	94.6	1.18

1. Level of service, based on 2000 HCM methodology.
2. Average delay per vehicle, in seconds.
3. V/C = Volume-to-capacity ratio for signalized intersections, WM= worst movement/approach for unsignalized intersections.
4. Based on the v/c ratio of greater than 1.20, vehicle delay at this intersection may be greater than reported in the table.
5. Intersection runs on controller at Stewart/Denny; resulting v/c ratio not applicable to this intersection.

* Unsignalized intersection

Table 16. 2025 Build-Out PM Peak Hour LOS Summary – *Alternative 1* (No Action)

		2005 Existing			2025 Alternative 1 (No Action)		
#	Intersection	LOS[1]	Delay[2]	V/C or WM[3]	LOS	Delay	V/C or WM
1	5th Ave/Roy St	B	18.6	0.64	C	25.4	0.72
2	9th Ave/Broad St	C	28.5	0.87	C	34.8	0.99
3	Westlake Ave/Valley St	B	17.4	0.94	F	85.6	1.28
4	Fairview Ave/Valley St	C	26.1	0.70	C	31.1	0.85
5	1st Ave/Mercer St	B	17.9	0.60	C	20.9	0.69
6	5th Ave/Mercer St	C	21.2	0.59	C	28.6	0.69
7	Dexter Ave/Mercer St	E	59.6	0.93	F	83.8	1.18
8	9th Ave/Mercer St	C	33.3	0.72	C	31.0	0.74
9	Westlake Ave/Mercer St	B	19.8	0.75	F	>120.0	1.25
10	Fairview Ave/Mercer St	E	68.9	1.14	F	>120.0	1.50
11	5th Ave/Republican	A	3.7	0.30	A	8.3	0.34
12	5th Ave/Harrison St	B	19.8	0.48	C	31.7	0.63
13	Broad St/Harrison St*	C	17.3	EB	C	19.6	EB
14	5th Ave/Broad St	C	21.8	0.53	C	22.1	0.60
15	1st Ave/Denny Way	B	14.0	0.71	B	19.5	0.85
16	Broad St/Denny Way	B	20.4	0.60	C	22.5	0.79
17	5th Ave/Denny Way	B	15.6	0.56	B	17.5	0.67
18	Aurora Ave/Denny Way	E	64.4	0.83	F	>120.0	1.26
19	Dexter Ave/Denny Way	B	15.1	0.64	C	26.3	0.93
20	Westlake Ave/Denny Way	B	13.4	0.60	C	36.1	1.02
21	Fairview Ave/Denny Way	D	36.6	0.69	E	77.4	1.01
22	Stewart St/Denny Way	C	30.8	0.84	F	87.2	1.12
23	Stewart St/Yale Ave	B	13.6	–[5]	C	21.6	–[5]
24	Howell St/Yale Ave	E	68.9	1.09	F	>120.0	1.51

1. Level of service, based on 2000 HCM methodology.
2. Average delay per vehicle, in seconds.
3. V/C = Volume-to-capacity ratio for signalized intersections, WM = worst movement/approach for unsignalized intersections.
4. Based on the v/c ratio of greater than 1.20, vehicle delay at this intersection may be greater than reported in the table.
5. Intersection runs on controller at Stewart/Denny; resulting v/c ratio not applicable to this intersection.

* Unsignalized intersection

As shown in Tables 15 and 16, 2025 intersection levels of service within the study area are expected to change at a number of study intersections between existing conditions and the 2025 *Alternative 1* (No Action). The changes are the result of a combination of factors, including background traffic growth and the addition of pipeline project traffic. Also, changes in intersection LOS at study intersections on Westlake Ave. N. and Terry Ave. N. can be attributed in part to the changes proposed as part of the streetcar project which would convert Westlake Ave. N. to two-way operations and a portion of Terry Ave. N to one-way operations. The following list summarizes the two study intersections that would continue to operate poorly under the 2025 *Alternative 1* (No Action) and the nine study intersections where the LOS is expected to degrade to LOS E or F between existing conditions and the 2025 *Alternative 1* (No Action). They include:

#3. Westlake Ave./Valley St. This intersection would degrade from LOS B to LOS F during the PM peak hour. This is the result of a combination of the conversion of Westlake Ave. N to two-way operations to accommodate the proposed streetcar and increased background and pipeline traffic volumes.

#7. Mercer St./Dexter Ave. N. This intersection would degrade from LOS E to LOS F during the PM peak hour. This is the result of increased background and pipeline traffic volumes.

#9. Mercer St./Westlake Ave. N. This intersection would degrade from LOS B to LOS F during the PM peak hour. This is the result of a combination of the conversion of Westlake Ave. N to two-way operations to accommodate the proposed streetcar and increased background and pipeline traffic volumes.

#10. Mercer St./Fairview Ave. N. This intersection would continue to operate at LOS F during the AM peak hour, and would degrade from LOS E to LOS F during the PM peak hour. This intersection would continue to operate at a poor LOS as a result of high traffic volumes and its proximity to I-5. Delays at this intersection would increase as a result in background traffic growth and pipeline project trips accessing I-5 via this intersection.

#14. 5th Ave. N./Broad St. This intersection would degrade from LOS D to LOS E during the AM peak hour. This is the result of increased background and pipeline traffic volumes.

#18. Denny Way/Aurora Ave. N. This intersection would degrade from LOS C to LOS F during the AM peak hour, and from LOS E to LOS F during the PM peak hour. Poor peak hour operations at this intersection are attributable to the intersection providing access to/from Aurora Ave. N., and high traffic volumes on Denny Way, and as a result of the combination of growth in background traffic volumes and pipeline project traffic.

#21. Denny Way/Fairview Ave. N. This intersection would degrade from LOS D to LOS E during the PM peak hour. This reduction in LOS can be attributed to the intersection's proximity to I-5, and increases in background traffic volumes and the addition of pipeline traffic volumes which access I-5 via Denny Way.

#22. Denny Way/Stewart Ave. N. This intersection would degrade from LOS D to LOS F during the AM peak hour, and from LOS C to LOS F during the PM peak hour. This reduction in LOS can be attributed to the intersection's proximity to I-5, and increases in background traffic volumes and the addition of pipeline traffic volumes which exit I-5 at this intersection.

#24. Yale Ave./Howell St. This intersection would degrade from LOS D to LOS F during the AM peak hour, and from LOS E to LOS F during the PM peak hour. This intersection provides access to I-5 from the South Lake Union and Denny Triangle neighborhoods. Increased background traffic volumes and the addition of pipeline project trips result in degraded conditions by 2025.

As shown in Tables 15 and 16, several signalized intersections are forecast to have entering volumes that exceed capacity by close to 20 percent (a volume-to-capacity (v/c) ratio exceeding 1.20). At a v/c ratio of greater than 1.20, calculated vehicle delays become increasingly inaccurate. This is due to the sensitivity of the vehicle delay equation at high v/c ratios and, as a result, the vehicle delay exponentially increases. Thus, changes in LOS and operations are best measured by the v/c ratio and delay is reported as greater than 120 seconds to indicate this condition.

Locations where intersection operations shown in Tables 15 and 16 improve between 2005 existing conditions and the 2025 *Alternative 1* (No Action) can be attributed to the optimization of signal timing and roadway modifications made to reflect anticipated 2025 conditions.

Transit & Rail

By the year 2025, it is anticipated that the Downtown Tunnel will have been reopened following the completion of construction to accommodate new track construction for light rail. Therefore, transit that was re-routed to surface streets during the closure will have returned to the tunnel. In addition, bus transit headways are expected to increase while overall transit service headways are expected to be reduced through Downtown since rail service will attract a portion of transit ridership. The number of routes and the frequency of routes traveling through Downtown and near the project site are expected to be similar to current conditions.

It is not anticipated that any changes are likely to be made to the existing Seattle Center Monorail which would result in operations being significantly different that those documented above for existing conditions.

As stated previously in the planned improvements section for the initial phase, the South Lake Union Streetcar is anticipated to be complete by 2007, and would improve transit connectivity through the study area. This is anticipated to increase transit travel within the study area compared to 2005 existing levels.

Non-Motorized Facilities

As stated in the *Planned Improvements* portion of this section, no changes to the non-motorized facilities within the study area are anticipated by 2025. While non-motorized travel is anticipated to increase within the study area compared to 2005 existing levels, existing non-motorized facilities are anticipated to accommodate anticipated growth.

Safety

There would be a slight increase in the potential for traffic accidents at the study intersections proportionate to the increase in traffic due to background and pipeline traffic growth that would occur by 2025. Therefore, it is possible that the proportionate increase in traffic at the intersections of Mercer St/5th Avenue, Mercer St/9th Avenue, and Denny Way/Westlake Ave. N. may impact the existing safety hazard at these HAL locations.

Parking

Parking supply in the project vicinity and on the project site is expected to remain consistent to the existing conditions documented in the affected environment section. No changes to on-street parking supply are identified by SDOT in the site vicinity. Similarly, the *Alternative 1* (No Action) would maintain current on-site parking supply for the existing uses. An additional 1,000 parking stalls would be available in the proposed Seattle Center Parking Garage, which is anticipated to be complete prior to 2025.

Alternatives 2 and 3 Build-Out

This section documents traffic conditions within the study area in 2025 with build-out development according to either *Alternative 2*, or *Alternative 3*. *Alternative 2* build-out includes the development of up to 1,000,000 square feet of office space spread through several buildings located in a campus setting. *Alternative 3* build-out includes the development of up to 900,000 square feet of office space spread through several buildings located in a campus setting.

Street System

No off-site modifications to street channelization or intersection control are proposed as part of either the *Alternative 2* build-out or *Alternative 3* build-out. Development associated with both the *Alternative 2* build-out and the *Alternative 3* build-out would improve existing sidewalks on the site frontage along Mercer Street, Harrison Street and 5th Avenue N.

Traffic Generation

Trip generation estimates for build-out were developed using the same methodology used to estimate trip generation for the initial phase. The five step process used to estimate trip generation was unchanged from that of initial phase, with the exception of the mode split assumptions. For build-out it was assumed that a TMP would be in place, with the following values:

Transit/Bike/Walk:	30%
Carpool/Vanpool:	20%
SOV:	50%

As shown in Table 17, *Alternative 2* build-out (1,000,000 sf) would generate a total of about 5,625 average weekday trips, with 1,050 occurring during the weekday AM peak hour, and 985 during the PM peak hour. For comparison purposes, the *Alternative 3* build-out (900,000 sf) would generate approximately 11 percent fewer AM and PM peak hour trips than the *Alternative 2* build-out.

Table 17. 2025 Build-Out – Net New Trip Generation

Time Period	Daily	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Alternative 2 Build-Out	5,625	975	75	1050	100	885	985
Alternative 3 Build-Out	5,060	880	65	945	90	795	885

Distribution and Assignment

Traffic associated with both the *Alternative 2* build-out and the *Alternative 3* build-out is expected to distribute to surrounding local and regional roadways based on the same percentages outlined in Table 5 for the initial phase.

The inbound and outbound distribution patterns shown in Figures 6 and 7 were used to assign *Alternative 2* build-out and *Alternative 3* build-out AM and PM peak hour traffic to the study area roadways and intersections. The resulting AM and PM peak hour assignments of project-generated traffic are illustrated in Figures 11 and 12 for the *Alternative 2* build-out and the *Alternative 3* build-out respectively.

Traffic Volume Impacts

Peak hour with project traffic volumes for the build-out alternatives were developed by assigning the project-generated trips to the 2025 *Alternative 1* (No Action) peak hour traffic volumes at the study intersections. The resulting traffic volumes with the build-out alternatives are illustrated in Figures 13 and 14. These volumes were then compared with the *Alternative 1* (No Action) traffic volumes in order to identify the traffic volume impacts of the *Alternative 2* build-out and *Alternative 3* build-out in the year 2025. Tables 18 and 19 illustrate the percent impact of traffic generated by the *Alternative 2*

build-out and *Alternative 3* build-out at the study area intersections during weekday AM and PM peak hours.

Table 18. 2025 Build-Out AM Peak Hour Percent Project Impact

			Alternative 2		Alternative 3	
	Intersection	Alternative 1 (No Action)	Project Traffic	% Project Impact	Project Traffic	% Project Impact
1	5th Ave/Roy St	1,030	56	5.2%	51	4.7%
2	9th Ave/Broad St	3,750	391	9.4%	352	8.6%
3	Westlake Ave/Valley St	4,800	349	6.8%	314	6.1%
4	Fairview Ave/Valley St	4,610	345	7.0%	311	6.3%
5	1st Ave/Mercer St	1,695	49	2.8%	44	2.5%
6	5th Ave/Mercer St	2,600	138	5.0%	124	4.6%
7	Dexter Ave/Mercer St	3,535	37	1.0%	32	0.9%
8	9th Ave/Mercer St	3,545	30	0.8%	26	0.7%
9	Westlake Ave/Mercer St	4,015	30	0.7%	26	0.6%
10	Fairview Ave/Mercer St	7,880	316	3.9%	284	3.5%
11	5th Ave/Republican	1,210	578	32.3%	520	30.1%
12	5th Ave/Harrison St	1,270	512	28.7%	465	26.8%
13	Broad St/Harrison St*	2,455	440	15.2%	396	13.9%
14	5th Ave/Broad St	2,345	468	16.6%	422	15.3%
15	1st Ave/Denny Way	4,105	53	1.3%	47	1.1%
16	Broad St/Denny Way	3,835	154	3.9%	94	2.4%
17	5th Ave/Denny Way	2,655	311	10.5%	281	9.6%
18	Aurora Ave/Denny Way	4,175	259	5.8%	234	5.3%
19	Dexter Ave/Denny Way	3,215	259	7.5%	234	6.8%
20	Westlake Ave/Denny Way	3,340	211	5.9%	190	5.4%
21	Fairview Ave/Denny Way	3,515	207	5.6%	187	5.1%
22	Stewart St/Denny Way	4,965	158	3.1%	143	2.8%
23	Stewart St/Yale Ave	3,080	8	0.3%	7	0.2%
24	Howell St/Yale Ave	1,955	8	0.4%	7	0.4%

Beyond the immediate study area, traffic generated by the *Alternative 2* build-out would generally account for less than ten percent of the total entering traffic during the AM and PM peak hours. The portion of the study area bounded by 5th Ave. N., Denny Way, and Mercer St. would experience the greatest traffic impact, ranging from approximately 5 to 33 percent. This is due to their close proximity to the project site. Traffic volume impacts associated with the *Alternative 3* build-out are similar to those of the *Alternative 2* build-out. They range from approximately 5 to 30 percent at the study intersections adjacent to the project site.

During the weekday AM peak hour, the project impact at the most congested intersections range from 3.1 percent (158 trips) at the Stewart St./Denny Way intersection, to 5.8 percent (259 trips) at the intersection of Denny Way/Aurora Ave for the *Alternative 2* build-out. For the *Alternative 3* build-out, the project impacts range from 2.8 percent (143 trips) at the Stewart St./Denny Way intersection, to 5.3 percent (234 trips) at the intersection of Denny Way/Aurora Ave, slightly lower than for the *Alternative 2* build-out. Peak hour traffic volumes typically vary on a daily basis and have been documented to fluctuate as high as 5 percent, yet the fluctuation is usually unnoticeable from a driver's perspective.

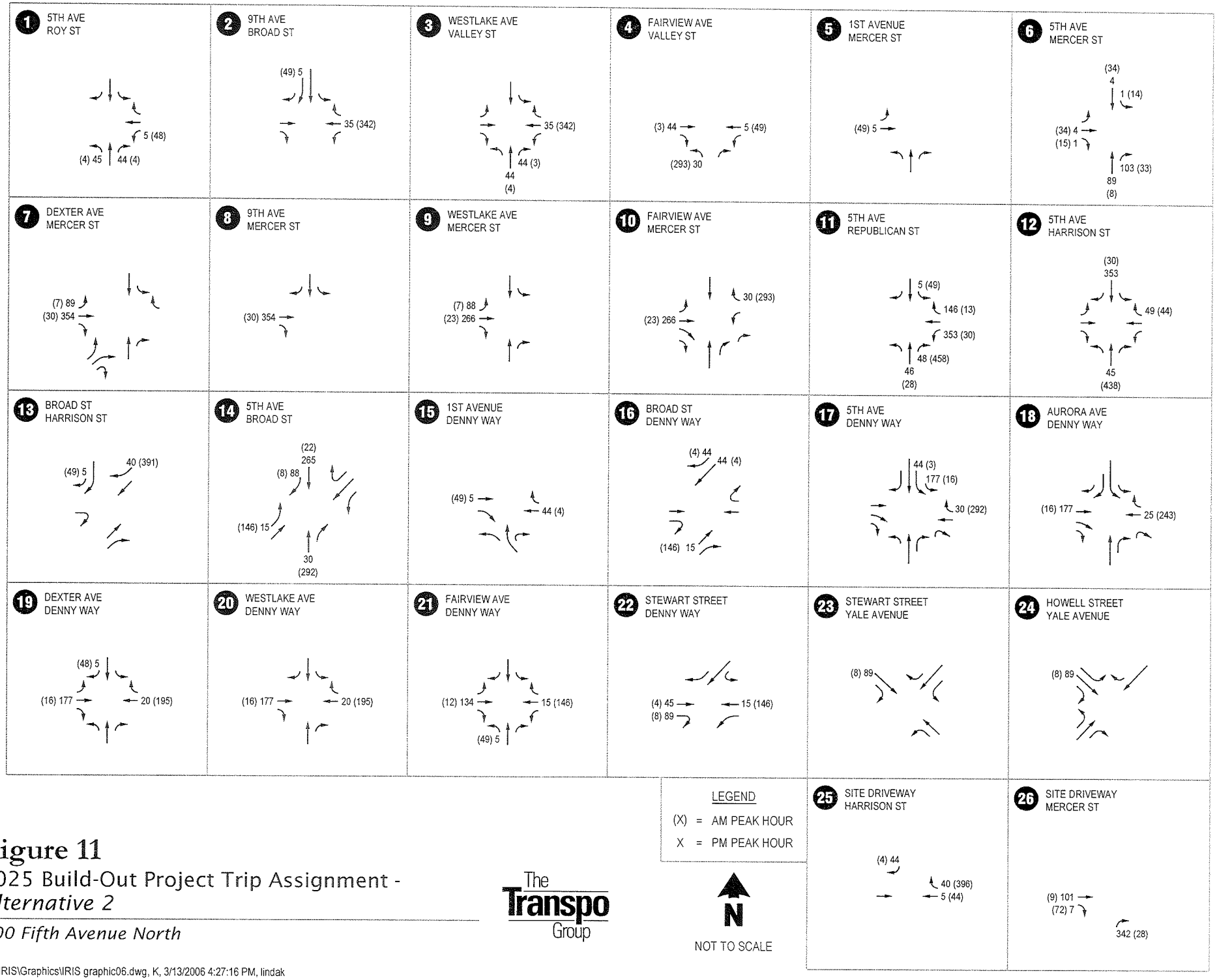

Figure 11

2025 Build-Out Project Trip Assignment - *Alternative 2*

500 Fifth Avenue North

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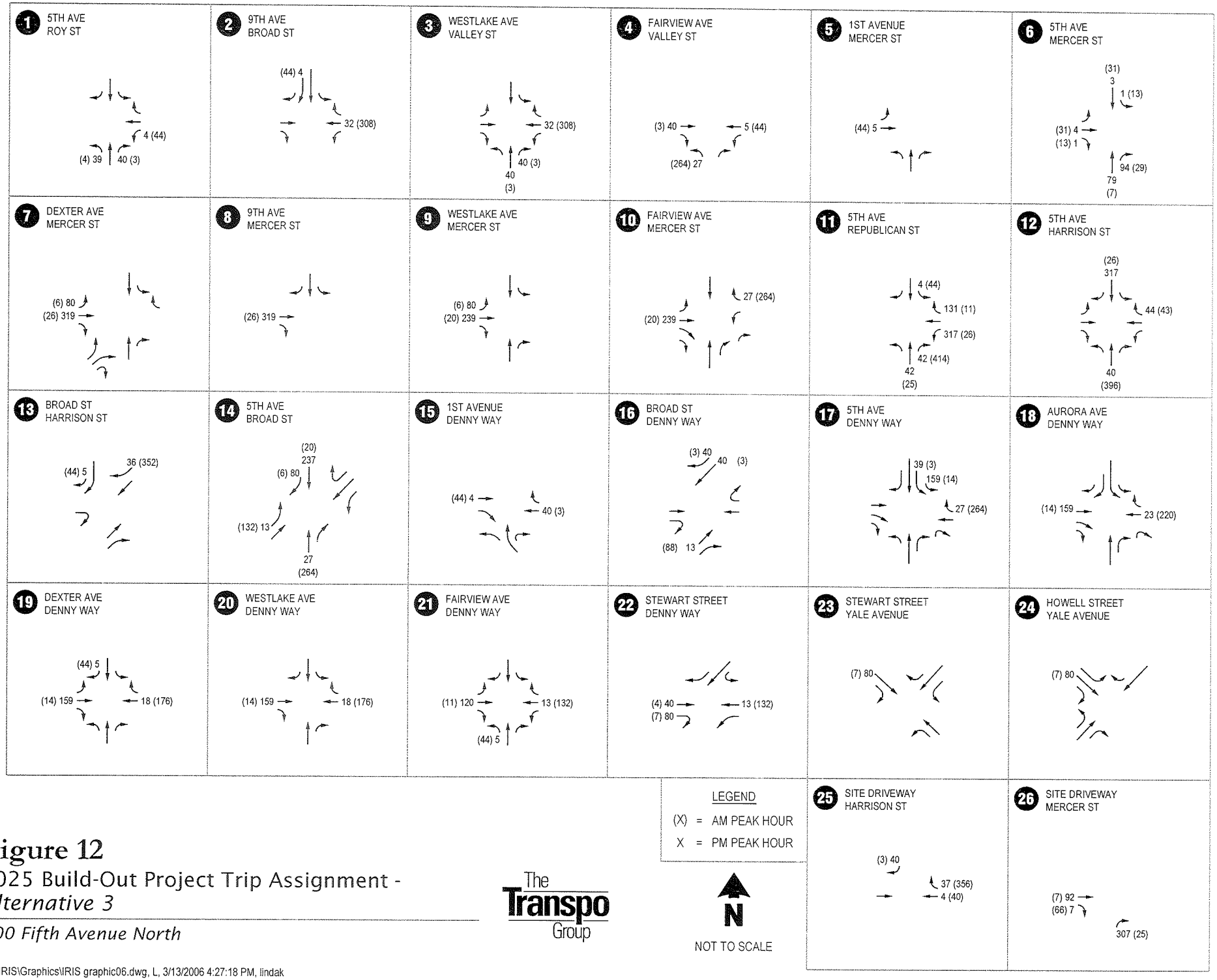

Figure 12

2025 Build-Out Project Trip Assignment - *Alternative 3*

500 Fifth Avenue North

The Transpo Group

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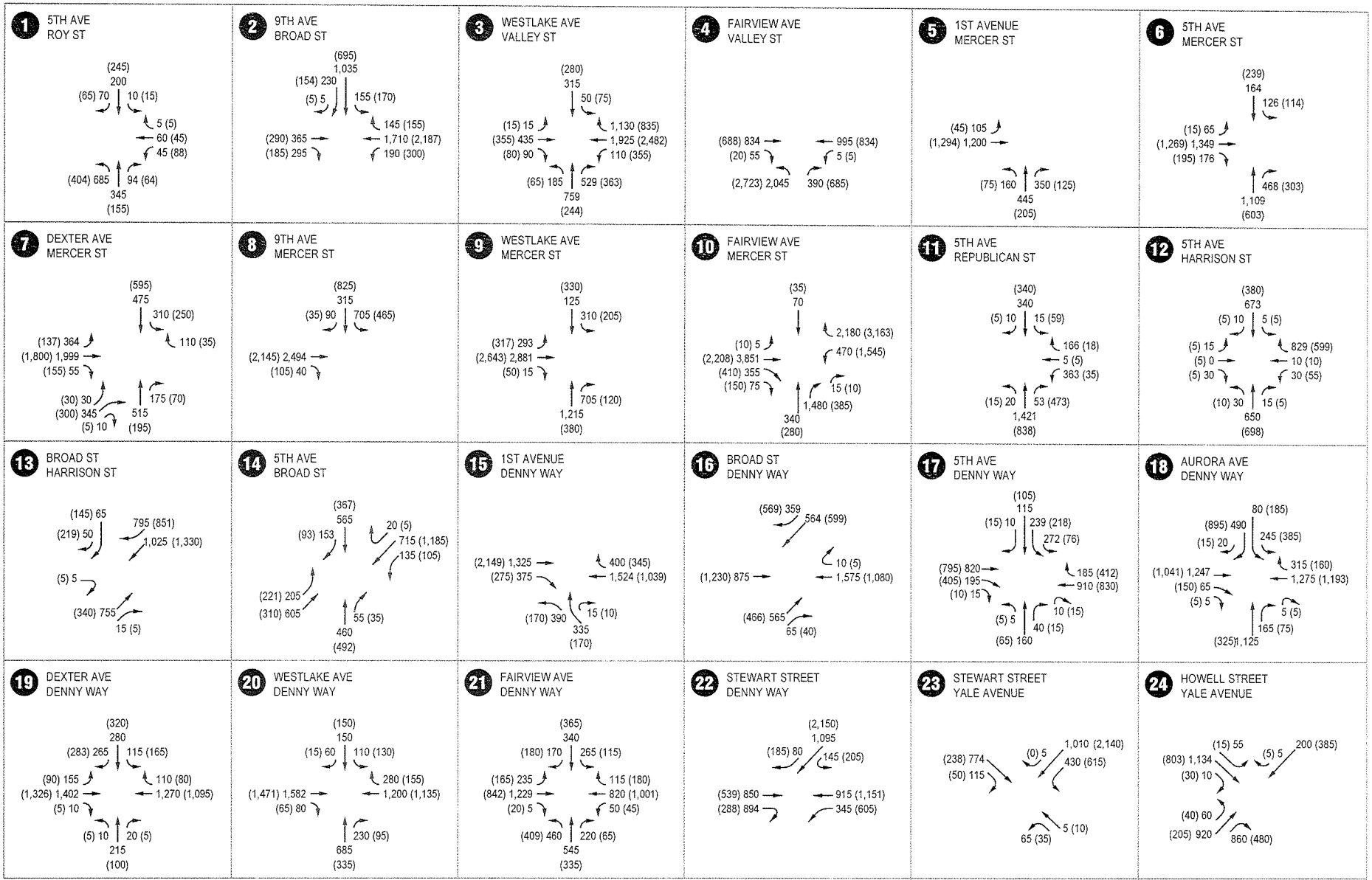

Figure 13

2025 Build-Out With-Project Traffic Volumes - *Alternative 2*

500 Fifth Avenue North

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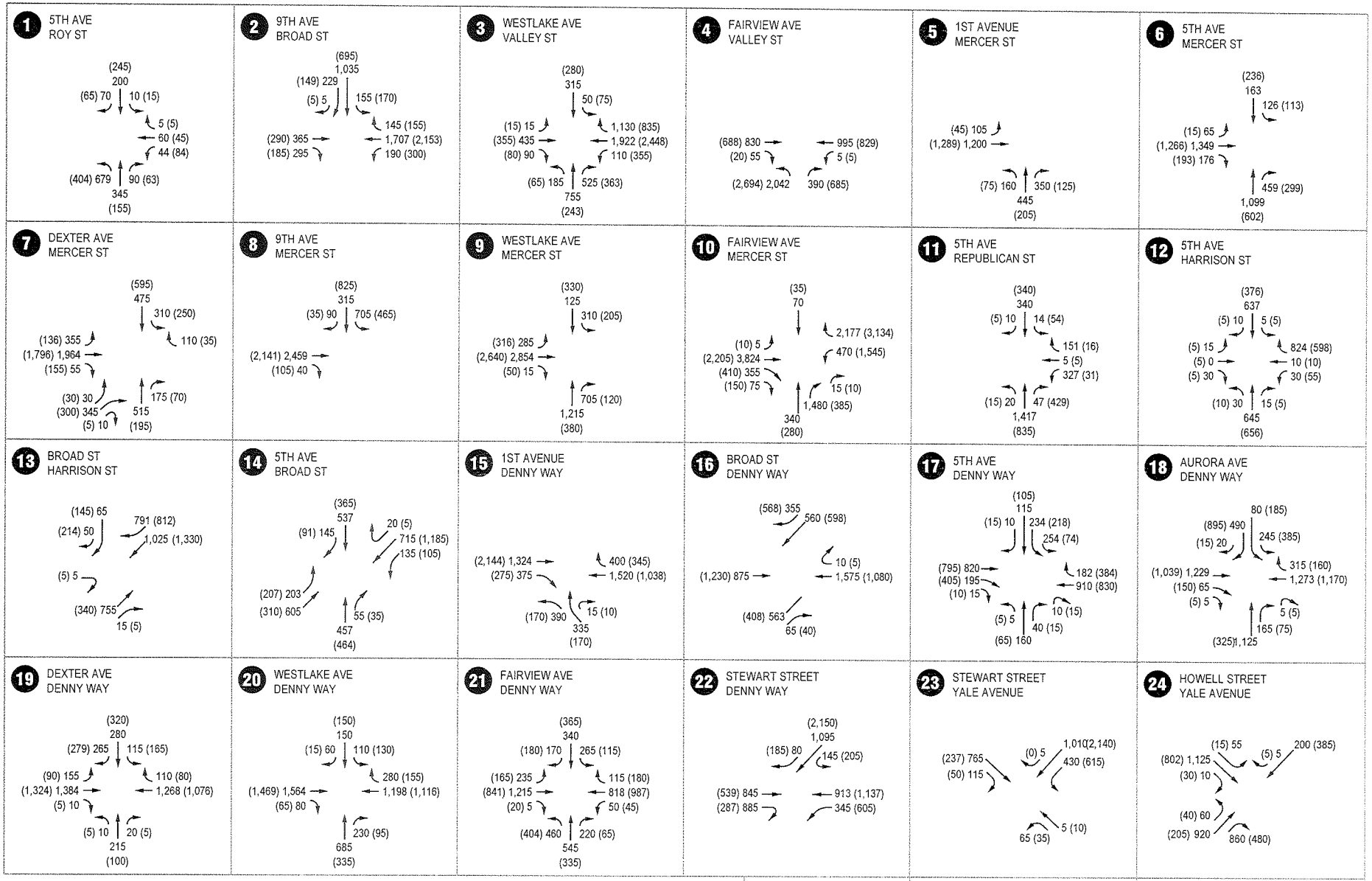

Figure 14

2025 Build-Out With-Project Traffic Volumes - *Alternative 3*

500 Fifth Avenue North

The Transpo Group

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During the weekday PM peak hour, the project impacts range from 2.7 percent (89 trips) at the Howell St./Yale Ave. intersection, to 6.4 percent (354 trips) at the intersection of Westlake Ave./Mercer St, for the *Alternative 2* build-out. For the *Alternative 3* build-out, the project impact at the most congested intersections range from 2.5 percent (80 trips) at the Howell St./Yale Ave. intersection, to 5.8 percent (319 trips) at the intersection of Westlake Ave./Mercer St, slightly lower than for the *Alternative 2* build-out. Peak hour traffic volumes typically vary on a daily basis and have been documented to fluctuate as high as 5 percent, yet the fluctuation is usually unnoticeable from a driver's perspective.

The percentages identified in Tables 18 and 19 show that the impacts of the build-out alternatives would fall within the range of fluctuation that occurs as a result of background traffic at the majority of study intersections. For those intersections closest to the project sites that have a 5 to 35 percent impact, intersection operations were evaluated to determine whether additional measures would be needed to mitigate impacts of the build-out alternatives, as described in the following sections.

Table 19. 2025 Build-Out PM Peak Hour Percent Project Impact

			Alternative 2		Alternative 3	
	Intersection	Alternative 1 (No Action)	Project Traffic	% Project Impact	Project Traffic	% Project Impact
1	5th Ave/Roy St	1,420	94	6.2%	83	5.5%
2	9th Ave/Broad St	4,090	40	1.0%	36	0.9%
3	Westlake Ave/Valley St	5,420	123	2.2%	112	2.0%
4	Fairview Ave/Valley St	4,245	79	1.8%	72	1.7%
5	1st Ave/Mercer St	2,255	5	0.2%	5	0.2%
6	5th Ave/Mercer St	3,255	202	5.8%	182	5.3%
7	Dexter Ave/Mercer St	3,945	443	10.1%	399	9.2%
8	9th Ave/Mercer St	3,290	354	9.7%	319	8.8%
9	Westlake Ave/Mercer St	5,190	354	6.4%	319	5.8%
10	Fairview Ave/Mercer St	8,545	296	3.3%	266	3.0%
11	5th Ave/Republican	1,795	598	25.0%	536	23.0%
12	5th Ave/Harrison St	1,850	447	19.5%	401	17.8%
13	Broad St/Harrison St*	2,730	45	1.6%	41	1.5%
14	5th Ave/Broad St	2,515	398	13.7%	357	12.4%
15	1st Ave/Denny Way	4,315	49	1.1%	44	1.0%
16	Broad St/Denny Way	3,910	103	2.6%	93	2.3%
17	5th Ave/Denny Way	2,725	251	8.4%	225	7.6%
18	Aurora Ave/Denny Way	4,835	202	4.0%	182	3.6%
19	Dexter Ave/Denny Way	3,650	202	5.2%	182	4.7%
20	Westlake Ave/Denny Way	4,180	197	4.5%	177	4.1%
21	Fairview Ave/Denny Way	4,300	154	3.5%	138	3.1%
22	Stewart St/Denny Way	4,175	149	3.4%	133	3.1%
23	Stewart St/Yale Ave	2,315	89	3.7%	80	3.3%
24	Howell St/Yale Ave	3,155	89	2.7%	80	2.5%

Traffic Operations Impacts

Traffic operations impacts include the consideration of changes in operations of study area intersections, as well as at the proposed site access at the points where it interfaces with abutting streets. This section also evaluates area-wide concurrency based on the City's screenline analysis.

Intersection Level of Service

Tables 20 and 21 provide a summary of the build-out project alternatives' weekday AM and PM peak hour levels of service, respectively, for each intersection. For purposes of comparison, *Alternative 1* (No Action) levels of service are also provided.

Seven of the signalized study intersections will continue to operate at LOS F with or without the *Alternative 2* build-out or *Alternative 3* build-out. Project impacts to these locations are summarized below in terms of traffic volume impacts. When an intersection reaches LOS F, vehicle delay calculations are sensitive and may not provide a reliable measure of project impacts.

#3. Westlake Ave/Valley St. This intersection would continue to operate at LOS F during the PM peak hour. *Alternative 2* build-out project traffic accounts for 2.2 percent of the PM peak hour entering volumes at this intersection, while the *Alternative 3* build-out would account for 2.0 percent. The South Lake Union Transportation Study has identified solutions to address both the existing and future operational deficiencies at this intersection.

#7. Dexter Ave/Mercer St. This intersection would continue to operate at LOS F during the PM peak hour. *Alternative 2* build-out project traffic accounts for 10.1 percent of the PM peak hour entering volumes at this intersection, while the *Alternative 3* build-out would account for 9.2 percent. The South Lake Union Transportation Study has identified solutions to address both the existing and future operational deficiencies at this intersection.

#9. Mercer St./Westlake Ave. N. This intersection would continue to operate at LOS F during the PM peak hour. *Alternative 2* build-out project traffic accounts for 6.4 percent of the PM peak hour entering volumes at this intersection, while the *Alternative 3* build-out would account for 5.8 percent. The South Lake Union Transportation Study has identified solutions to address both the existing and future operational deficiencies at this intersection.

#10. Mercer St./Fairview Ave. N. This intersection would continue to operate at LOS F during both the AM and PM peak hours. With either *Alternative 2* build-out or *Alternative 3* build-out, project traffic accounts for less then 4.0 percent of the peak hour entering traffic volumes at this location. The South Lake Union Transportation Study has identified solutions to address both the existing and future operational deficiencies at this intersection.

#18. Denny Way/Aurora Ave. This intersection would continue to operate at LOS F during both the AM and PM peak hour. During the AM peak hour project accounts for less than 6.0 percent of entering volumes at this intersection for both *Alternatives 2 and 3*. During the PM peak hour project accounts for less than 4.0 percent of entering volumes at this intersection for both *Alternatives 2 and 3*.

The Washington State Department of Transportation (WSDOT) and City of Seattle, as part of the larger Alaskan Way Viaduct replacement solution, are currently evaluating changes to SR 99 through the South Lake Union Neighborhood. The current proposal would lower SR 99 between Roy Street and Denny Way, and would reconnect several streets across SR 99, including Republican Street, Harrison Street, and Thomas Street.

In addition, the connections between SR 99 and the surface street network would be modified to provide additional access points at Roy Street and Republican Street. The Alaskan Way Viaduct project is not anticipated to be complete until beyond 2010, so was not included in the evaluation of project impacts for the *Alternative 2* build-out or *Alternative 3* build-out. However, when complete, the Alaskan Way Viaduct project would relieve congestion at the Aurora Ave/Denny Way intersection, through the provision of the additional access ramps.

#22. Stewart St./Denny Way. This intersection would continue to operate at LOS F during both the AM and PM peak hours. Project traffic accounts for less than 4.0 percent of entering volumes at this intersection during both peak hours and for both *Alternatives 2 and 3*. Improvement options are limited due to capacity restraints and its close proximity to the I-5 entrance and exit.

#24. Howell St./Yale Ave. This intersection would continue to operate at LOS F during both the AM and PM peak hours. With either *Alternative*, project traffic accounts for less than 3.0 percent of the PM peak hour entering volumes at this intersection, and less than 1.0 percent during the AM peak hour. Improvement options are limited due to capacity restraints and high traffic volumes entering I-5.

In addition to the intersections which are anticipated to operate at LOS F with *Alternative 2* build-out or *Alternative 3* build-out, one of the signalized study intersections will continue to operate at LOS E with or without either *Alternative*.

#14. 5th Ave./Broad St. This intersection would continue to operate at LOS E during the AM peak hour. Project traffic accounts for between 16.6 percent and 15.3 percent of the AM peak hour entering volumes at this intersection, for *Alternative 2* and *Alternative 3* respectively.

During the AM peak hour, the addition of traffic generated by the *Alternative 2* build-out would cause the level of service at the following intersection to degrade:

- #2. 9th Ave/Broad St (LOS D to LOS F)
- #3. Westlake Ave/Valley St (LOS D to LOS F)
- #4. Fairview Ave/Valley St (LOS D to LOS E)
- #13. Broad St/Harrison St (LOS C to LOS D)
- #19. Dexter Ave/Denny Way (LOS B to LOS C)
- #21. Fairview Ave/Denny Way (LOS D to LOS E)

#2. 9th Ave/Broad St. This intersection would degrade operations from LOS D to LOS F during the AM peak hour with the *Alternative 2* build-out. Average intersection delay at this intersection would increase by approximately 40 seconds as a result of the addition of approximately 391 project trips representing 9.4 percent of total traffic. The South Lake Union Transportation Study has identified solutions to address both the existing and future operational deficiencies at this intersection.

#3. Westlake Ave/Valley St. This intersection would degrade operations from LOS D to LOS F during the AM peak hour with the *Alternative 2* build-out. Average intersection delay at this intersection would increase by approximately 46 seconds as a result of the addition of approximately 349 project trips representing 6.8 percent of total traffic.

#4. Fairview Ave/Valley St. This intersection would degrade operations from LOS D to LOS E during the AM peak hour with the *Alternative 2* build-out. Average intersection delay at this intersection would increase by approximately 25 seconds as a result of the addition of approximately 345 project trips representing 7.0 percent of total traffic.

#21. Fairview Ave./Denny Way. This intersection would degrade operations from LOS D to LOS E during the AM peak hour with the *Alternative 2* build-out. Average intersection delay at this intersection would increase by approximately 24 seconds as a result of the addition of approximately 207 project trips representing 5.6 percent of total traffic.

The addition of project traffic generated by the *Alternative 3* build-out would result in the same changes in intersection operations as the *Alternative 2* build-out during the AM peak hour, with two exceptions:

- #2. 9th Ave./Broad St. (LOS D to LOS E)
- #3. Westlake Ave./Valley St. (LOS D to LOS E)

At the remaining study intersections, average intersection delays with the *Alternative 3* build-out would be up to approximately 5 seconds shorter than with the *Alternative 2* build-out.

The remaining study intersections would operate at the same level of service as the *Alternative 1* (No Action) build-out during the AM peak hour.

During the PM peak hour, the addition of project traffic associated with the *Alternative 2* build-out would cause the LOS at the following intersections to degrade:

- #1. 5th Ave./Roy St. (LOS C to LOS D)
- #2. 9th Ave./Broad St. (LOS C to LOS D)
- #11. 5th Ave./Republican St. (LOS A to LOS B)
- #15. 1st Ave./Denny Way (LOS B to LOS C)
- #19. Dexter Ave./Denny Way (LOS C to LOS D)
- #20. Westlake Ave./Denny Way (LOS C to LOS D)
- #21. Fairview Ave./Denny Way (LOS E to LOS F)

#21. Fairview Ave./Denny Way. This intersection would degrade operations from LOS E to LOS F during the PM peak hour with the *Alternative 2* build-out. Average intersection delay at this intersection would increase by approximately 12 seconds as a result of the addition of approximately 154 project trips representing 3.5 percent of total traffic.

The addition of project traffic generated by the *Alternative 3* build-out would result in the same changes in intersection operations as the *Alternative 2* build-out during the PM peak hour, with two exceptions:

- #1. 5th Ave./Roy St. (LOS C to LOS C)
- #15. 1st Ave./Denny Way (LOS B to LOS B)

At the remaining study intersections, average intersection delays with the *Alternative 3* build-out would be up to approximately 8 seconds shorter than with the *Alternative 2* build-out.

The remaining study intersections would operate at the same level of service as *Alternative 1* (No Action) build-out during the PM peak hour.

Table 20. 2025 Build-Out AM Peak Hour LOS Summary

#	Intersection	Alternative 1 (No Action)			Alternative 2			Alternative 3		
		LOS[1]	Delay[2]	V/C or WM[3]	LOS	Delay	V/C or WM	LOS	Delay	V/C or WM
1	5th Ave/Roy St	C	28.0	0.55	C	28.9	0.59	C	28.8	0.59
2	9th Ave/Broad St	D	42.3	1.02	F	82.1	1.15	E	77.9	1.14
3	Westlake Ave/Valley St	D	35.2	1.11	F	81.0	1.15	E	70.9	1.17
4	Fairview Ave/Valley St	D	39.9	0.95	E	65.0	1.03	E	62.1	1.02
5	1st Ave/Mercer St	B	15.1	0.56	B	15.6	0.57	B	15.5	0.57
6	5th Ave/Mercer St	D	46.0	0.49	D	38.9	0.51	D	39.8	0.51
7	Dexter Ave/Mercer St	D	50.1	0.90	D	51.8	0.91	D	51.7	0.90
8	9th Ave/Mercer St	D	39.2	0.84	D	39.0	0.84	D	39.1	0.84
9	Westlake Ave/Mercer St	C	26.8	0.90	C	26.7	0.90	C	27.3	0.90
10	Fairview Ave/Mercer St	F	>120.0	1.40	F	>120.0	1.52	F	>120.0	1.51
11	5th Ave/Republican	A	9.9	0.20	A	7.1	0.34	A	6.9	0.33
12	5th Ave/Harrison St	C	34.1	0.37	C	30.5	0.55	C	30.7	0.54
13	Broad St/Harrison St*	C	20.9	EB	D	27.5	EB	D	26.7	EB
14	5th Ave/Broad St	E	57.6	0.58	E	55.9	0.72	E	56.0	0.70
15	1st Ave/Denny Way	C	23.2	0.88	C	26.6	0.90	C	26.2	0.89
16	Broad St/Denny Way	C	25.3	0.85	C	26.1	0.85	C	25.9	0.85
17	5th Ave/Denny Way	B	13.9	0.66	B	15.3	0.69	B	15.1	0.67
18	Aurora Ave/Denny Way	F	80.6	1.02	F	116.2	1.09	F	112.3	1.08
19	Dexter Ave/Denny Way	B	18.1	0.81	C	20.8	0.86	C	20.5	0.86
20	Westlake Ave/Denny Way	B	18.8	0.80	B	19.1	0.81	B	19.1	0.81
21	Fairview Ave/Denny Way	D	51.1	0.91	E	75.0	0.99	E	72.5	0.98
22	Stewart St/Denny Way	F	>120.0	1.26	F	>120.0	1.27	F	>120.0	1.26
23	Stewart St/Yale Ave	A	6.1	–[5]	A	6.3	–[5]	A	6.3	–[5]
24	Howell St/Yale Ave	F	94.6	1.18	F	97.7	1.19	F	97.4	1.18

1. Level of service, based on 2000 HCM methodology.
2. Average delay per vehicle, in seconds.
3. V/C = Volume-to-capacity ratio for signalized intersections, WM= worst movement/approach for unsignalized intersections.
4. Based on the v/c ratio of greater than 1.20, vehicle delay at this intersection may be greater than reported in the table.
5. Intersection runs on controller at Stewart/Denny; resulting v/c ratio not applicable to this intersection.

* Unsignalized intersection

As Tables 20 and 21 indicate, the addition of project traffic increases delay at the majority of study intersections, which is typical when intersection volumes increase. However at six study intersections (#6, #9, and #11 during the AM peak hour, and #12 and #14 during both the AM and PM peak hours) the v/c ratio increases while the delay decreases compared to the *Alternative 1* (No Action) build-out. This is the result of project trips being added to the non-critical movements at these intersections, which in turn results in reduced average vehicle delays for the intersection overall.

Table 21. 2025 Build-Out PM Peak Hour LOS Summary

#	Intersection	Alternative 1 (No Action)			Alternative 2			Alternative 3		
		LOS[1]	Delay[2]	V/C or WM[3]	LOS	Delay	V/C or WM	LOS	Delay	V/C or WM
1	5th Ave/Roy St	C	25.4	0.72	D	35.7	0.76	C	33.1	0.76
2	9th Ave/Broad St	C	34.8	0.99	D	38.3	1.01	D	37.9	1.01
3	Westlake Ave/Valley St	F	85.6	1.28	F	98.4	1.31	F	97.3	1.31
4	Fairview Ave/Valley St	C	31.1	0.85	C	31.9	0.87	C	31.8	0.87
5	1st Ave/Mercer St	C	20.9	0.69	C	21.0	0.70	C	21.0	0.70
6	5th Ave/Mercer St	C	28.6	0.69	C	33.6	0.72	C	34.5	0.72
7	Dexter Ave/Mercer St	F	83.8	1.18	F	87.8	1.27	F	86.3	1.23
8	9th Ave/Mercer St	C	31.0	0.74	C	31.2	0.80	C	31.1	0.80
9	Westlake Ave/Mercer St	F	>120.0	1.25	F	>120.0	1.32	F	>120.0	1.31
10	Fairview Ave/Mercer St	F	>120.0	1.50	F	>120.0	1.56	F	>120.0	1.55
11	5th Ave/Republican	A	8.3	0.34	B	13.8	0.61	B	12.0	0.59
12	5th Ave/Harrison St	C	31.7	0.63	C	34.1	0.69	C	29.5	0.57
13	Broad St/Harrison St*	C	19.6	EB	C	20.0	EB	C	20.0	EB
14	5th Ave/Broad St	C	22.1	0.60	C	20.0	0.62	C	20.5	0.62
15	1st Ave/Denny Way	B	19.5	0.85	C	20.0	0.86	B	19.9	0.86
16	Broad St/Denny Way	C	22.5	0.79	C	23.5	0.83	C	23.4	0.83
17	5th Ave/Denny Way	B	17.5	0.67	B	19.1	0.71	B	18.9	0.71
18	Aurora Ave/Denny Way	F	>120.0	1.26	F	>120.0	1.27	F	>120.0	1.27
19	Dexter Ave/Denny Way	C	26.3	0.93	D	50.1	1.02	D	47.5	1.01
20	Westlake Ave/Denny Way	C	36.1	1.02	D	45.0	1.13	D	46.2	1.10
21	Fairview Ave/Denny Way	E	77.4	1.01	F	89.2	1.05	F	87.7	1.04
22	Stewart St/Denny Way	F	87.2	1.12	F	106.5	1.17	F	104.3	1.16
23	Stewart St/Yale Ave	C	21.6	–[5]	C	34.5	–[5]	C	33.0	–[5]
24	Howell St/Yale Ave	F	>120.0	1.51	F	>120.0	1.59	F	>120.0	1.59

1. Level of service, based on 2000 HCM methodology.
2. Average delay per vehicle, in seconds.
3. V/C = Volume-to-capacity ratio for signalized intersections, WM= worst movement/approach for unsignalized intersections.
4. Based on the v/c ratio of greater than 1.20, vehicle delay at this intersection may be greater than reported in the table.
5. Intersection runs on controller at Stewart/Denny; resulting v/c ratio not applicable to this intersection.

* Unsignalized intersection

Site Access

Three points of ingress and egress would be provided for the *Alternative 2* build-out and *Alternative 3* build-out. As described previously, access to the Seattle Center Parking Garage would be provided via the signalized intersection of 5th Ave./Republican St., with a secondary access provided from Harrison St., via a right-in/right-out only driveway. Access to the parking structure beneath the *Alternative 2* initial phase is proposed to also be provided from the signalized intersection of 5th Ave./Republican St. via a subterranean connection through the Seattle Center Garage. A secondary, right-in/right-out only access to the parking structure beneath the *Alternative 2* initial phase is proposed to be provided from Mercer Street, in the vicinity of Taylor Avenue. A LOS analysis was conducted for each site access intersections for the AM and PM peak hours.

Table 22 summarizes the weekday AM and PM peak hour levels of service for the site access intersections that would serve the build-out Alternatives.

Table 22. 2025 Build-Out Driveway LOS Summary

Intersection	Alternative 2			Alternative 3		
	LOS[1]	Delay[2]	V/C or WM[3]	LOS	Delay	V/C or WM
AM Peak Hour						
5th Avenue/Republican St	A	7.1	0.34	A	6.9	0.33
South Driveway/Harrison St	B	11.6	SB	B	11.3	SB
North Driveway/Mercer St	B	12.3	NB	B	12.2	NB
PM Peak Hour						
5th Avenue/Republican St	B	13.8	0.61	B	12.0	0.59
South Driveway/Harrison St	B	10.7	SB	B	10.7	SB
North Driveway/Mercer St	C	23.7	NB	C	21.8	NB

1. Level of service, based on 2000 HCM methodology.
2. Average delay per vehicle, in seconds.
3. V/C = Volume-to-capacity ratio for signalized intersections, WM= worst movement/approach for unsignalized intersections.

As shown in Table 22, the site access intersections are estimated to operate at LOS C or better during both the AM and PM peak hours. The results indicate the site access intersections would provide adequate capacity for the proposed garage access locations.

In addition to the analysis of the site access intersections, vehicle queuing and individual movement levels of service were examined at the intersections directly adjacent to the site access intersections to determine how they interact with each other. With the *Alternative 2* build-out, during the AM peak hour the driveway approach at the 5th Ave/Republican St intersection would operate at LOS D, but with vehicle queues of only approximately three vehicles. The Harrison Street driveway is anticipated to operate at LOS B during the AM peak hour, as shown in Table 22, with minimal vehicle queues on the driveway approach. However, it is anticipated that the westbound queue from the 5th Ave/Harrison St signal would extend beyond the driveway intersection, blocking the Harrison St driveway at times during the AM peak hour. No blocking issues are anticipated at the 5th Ave/Republican St intersection during the AM peak hour. Conditions with the *Alternative 3* build-out would be slightly better due to the lower trip generation than for the *Alternative 2* build-out.

During the PM peak hour, with the *Alternative 2* build-out, the driveway approach to the 5th Ave/Republican St intersection is anticipated to operate at LOS C, however due to higher PM peak hour outbound traffic volumes, on-site vehicle queues are anticipated to extend for approximately 250 feet. As shown in Table 22, the Harrison Street driveway approach is anticipated to operate at LOS B, with minimal vehicle queuing. The westbound queue from the 5th Ave/Harrison St intersection is anticipated to block the Harrison Street driveway during the PM peak hour, however, this queue is anticipated to be shorter during the PM peak hour than in the AM so would block the driveway less frequently and for shorter time periods. It is also anticipated that the northbound through/right-turn queue at the 5th Ave/Mercer Street intersection could, for short periods, extend beyond the 5th Ave/Republican St intersection during the PM peak hour. Conditions with the *Alternative 3* build-out would be slightly better due to the lower trip generation than for the *Alternative 2* build-out; however, the same blocking issues documented above would continue to be experienced.

Transportation Concurrency

The four screenlines that were analyzed for concurrency review (see prior discussion for the *Alternative 2* initial phase) include the Ship Canal Bridges and South Lake Union, as shown in Table 23.

The transportation concurrency analysis indicates that with traffic generated by either of the build-out alternatives, the screenlines would have v/c ratios that are less than the City level of service threshold and thus, the alternatives would meet concurrency requirements.

Table 23. 2025 Build-Out Concurrency Analysis

SL[1] Number	Location	Direction[2]	Capacity	1998 Volume	V/C Standard	Alternative 2		Alternative 3	
						Project Traffic	V/C	Project Traffic	V/C
2	Magnolia	EB	4,480	2,130	1.00	10	0.48	9	0.48
		WB	4,480	2,820	1.00	89	0.65	79	0.65
5.12	Fremont Bridge	NB	2,000	2,070	1.20	44	1.06	40	1.06
		SB	2,000	1,270	1.20	5	0.64	4	0.64
5.13	Aurora Avenue	NB	4,950	4,908	1.20	89	1.01	80	1.01
		SB	4,950	3,195	1.20	10	0.65	9	0.65
5.16	University and Montlake Bridges	NB	4,300	3,820	1.20	266	0.95	239	0.94
		SB	4,300	3,630	1.20	30	0.85	27	0.85
8	South of Lake Union	EB	6,500	4,920	1.20	487	0.83	438	0.82
		WB	4,100	3,300	1.20	55	0.82	50	0.82

1. SL = Screen Line
2. *Direction: NB = Northbound, SB = Southbound, EB = Eastbound, WB = Westbound*

Transit Impacts

With site specific programs like a Transportation Management Program (TMP) or Commute Trip Reduction (CTR) in place, the transit mode split is expected to represent up to 30 percent of total person trips generated by the build-out alternatives. Under the *Alternative 2* build-out, approximately 2,870 daily transit trips would be generated by the development. Of those, approximately 535 transit trips would occur during the AM peak hour and approximately 505 transit trips during the PM peak hour.

Since the *Alternative 3* build-out would generate slightly fewer trips than the *Alternative 2* build-out, the transit trips would also be slightly fewer -- approximately 2,580 daily, 485 AM peak and 455 PM peak transit trips.

Existing transit routes serving the site vicinity provide regular service. The nearest stops are located north and south of the site on 5th Ave. N., and along Aurora Ave. N. These stops serve Routes 3N, 4N, 5, 16, 26, 28, 82, and 358, providing service to Downtown Seattle, Rainier Beach, University District, Northgate, Lake City, Shoreline, White Center and other local and regional locations. From these stops, transit service can be taken to destinations throughout the region. South of the site on Broad St., Routes 3S, 4S, and 74 are served by a westbound stop near 5th Ave. N. In addition, it is possible that some Foundation employees would likely use the existing Seattle Center Monorail to travel between the project site and downtown Seattle. However, no noticeable numbers of

Foundation employees were assumed to use the proposed South Lake Union Streetcar, due to the distance between the two, and location of Aurora Avenue. All of the routes provide service during the morning and afternoon commuter peaks. Existing transit service is expected to accommodate the additional demand generated by the *Alternative 2* build-out or *Alternative 3* build-out with a TMP program and, therefore, no significant adverse impacts to transit operations are expected to occur.

Non-Motorized Travel Impacts

As part of the build-out alternatives the existing sidewalks on each project site frontage would be improved. The build-out alternatives would also provide secure bicycle storage on the project site.

Existing non-motorized facilities within the study area are expected to accommodate the portion of the *Alternative 2* build-out trip generation that is expected to walk or bike to the project site. The *Alternative 2* build-out would not degrade any existing facilities; the redevelopment would enhance those facilities directly adjacent to each site. Thus, no significant adverse impacts to non-motorized facilities or operations are expected to occur as a result of the *Alternative 2* build-out of development.

The *Alternative 3* build-out is anticipated to generate fewer non-motorized trips than the *Alternative 2* build-out, due to the reduced development size. Therefore, no significant adverse impacts to non-motorized facilities or operations are expected to occur as a result of the *Alternative 3* build-out of development.

Safety Impacts

Adding *Alternative 2* build-out traffic volumes to study intersections and roadways would likely cause a proportionate increase in the probability of traffic accidents. Therefore, it is possible that the proportionate increase in traffic at the intersections of Mercer St/5th Avenue, Mercer St/9th Avenue, and Denny Way/Westlake Ave. N. may impact the existing safety hazard at these HAL locations.

The *Alternative 3* build-out traffic volumes would likely result in a slight reduction in the probability of traffic accidents than the *Alternative 2* build-out. This can be attributed to the lower trip generation for the *Alternative 3* build-out than for the *Alternative 2* build-out.

Parking Impacts

Code Requirements

The City of Seattle parking code requires a minimum of 1.0 stall per 1,000 gsf office space. The minimum parking supply required by the *Alternative 2* build-out to meet City of Seattle parking code requirements would be 1,000 stalls. The proposed on-site parking stalls and the covenanted stalls in the Seattle Center Parking Garage count towards meeting the code requirement. The parking supply, 1,226 stalls (980 on-site+246[6] covenanted spaces) for the *Alternative 2* build-out would meet code requirements.

City of Seattle parking code requirements for the *Alternative 3* build-out require a minimum of 900 parking stalls. The proposed on-site parking stalls and the agreed leased stalls in the Seattle Center Parking Garage count towards meeting the code requirement. This parking supply, 1,226 stalls (980

[6] The total number of spaces to be covenanted is 300. Of the 300, 246 spaces would be allocated to the campus and 54 spaces would be allocated to the visitor learning center and retail in the new Seattle Center garage.

on-site+246 covenants spaces), would be sufficient to meet City code requirements for this *Alternative*.

Parking Supply

On-site parking is proposed both below the *Alternative 2* build-out, and in the proposed Seattle Center Parking Garage. A total of approximately 980 parking stalls are proposed as part of the *Alternative 2* build-out. In addition to the approximately 980 spaces being provided on-site, the Seattle Center has agreed to covenant 246 stalls in the Seattle Center Parking Garage for exclusive daily use (up to 6:00 pm Monday through Friday) by the Foundation. For the *Alternative 2* build-out, there would be a total parking supply of 1,226 parking stalls.

Parking supply proposed for the *Alternatives 3* build-out would be the same as for the Alternative 2 build-out, with a total parking supply of 1,226 stalls.

Parking Demand

Parking demand for the build-out alternatives was calculated using the same approach as for the initial phase, with the exception that mode-split assumptions are consistent with those identified for the build-out alternatives, assuming a TMP in place. Calculation worksheets for the parking demand analysis are provided in Attachment D to this technical report.

Peak parking demand for the *Alternative 2* build-out would total 1,742 parking stalls. Assuming a total of 1,226 parking spaces for the *Alternative 2* build-out has an effective supply of 95 percent, or 1,165 spaces, the peak demand would exceed supply by approximately 577 parking stalls[7]. This excess parking demand would need to be accommodated through the use of available off-site off-street parking in the vicinity of the project site.

Peak parking demand for the *Alternative 3* build-out would total 1,568 parking stalls. Assuming a total of 1,226 parking spaces for the *Alternative 3* build-out has an effective supply of 95 percent, or 1,165 spaces, the peak parking demand would exceed supply by approximately 403 parking stalls.

Table 24. Build-Out Parking Summary

Alternative/Phase	Proposed Parking Supply	Parking Code Regulations	Practical Parking Supply[1]	Parking Demand	Parking Surplus/ Deficit[2]
Aggressive TMP Assumptions					
Alternative 2 Build-Out	1,226	1,000	1,165	1,742	-577
Alternative 3 Build-Out	1,226	900	1,165	1,568	-403

1. Assumes a 5% reduction to account for the practical capacity of the parking supply.
2. A parking deficit is indicated by a negative number, a parking surplus is shown by a positive number.

Alternative 4 Build-Out

The development proposed to occur under the *Alternative 4* build-out would include the same characteristics as the development identified for the *Alternative 3* build-out, with the development of up to 900,000 square feet of office space spread through several buildings located in a campus

[7] The 1,165-space amount is based on the total 1,226 stalls reduced factored by a practical capacity factor that takes into account the efficiency lost by circulating the garage in search of a vacant stall.

setting. The difference between the *Alternative 3* build-out and the *Alternative 4* build-out is that the improvements planned for Mercer Street and Aurora Avenue have been assumed in the design of the campus.

The Mercer Street improvements call for the conversion of Mercer St. from one-way to two-way operations, with the provision of three-travel lanes in each direction and additional turn lanes at intersections. To enable this to occur, Valley St. would be narrowed to a three-lane section with bike lanes. Left turn lanes may be provided at key intersections, as needed, such as Westlake Avenue. These changes would reduce regional traffic on Valley St. while focusing traffic to/from I-5 onto Mercer St. Mercer St. would also be reconnected across Aurora Ave. N., as would Thomas St.

The Aurora Avenue improvements would reconfigure access to/from Aurora Avenue to the north of the Battery Street tunnel. The current proposal would lower SR 99 between Roy Street and Denny Way, and would reconnect several streets across SR 99, including Republican Street, Harrison Street, and Thomas Street. As part of these improvements, the Broad Street underpass would be filled in adjacent to the project site. In addition, the connections between SR 99 and the surface street network would be modified to provide additional access points at Roy Street and Republican Street. Included in the reconnection of the streets across Aurora Avenue is the reconnection of 6th Avenue between Roy Street and Harrison Street, through the proposed project site. While these changes would improve some of the traffic movements in the project area, as discussed below, the reconnection of 6th Avenue would divide the project site and undermine the project goal of creating a unified office campus.

With these improvements in place, there could be direct site access to/from Republican Street. In addition, the proposed access to/from Harrison Street would be able to provide full access, potentially as a signalized fourth leg to the intersection with Taylor Avenue. With additional dispersion of access, the pressure of the added traffic load from the project would be more immediately dispersed, with less localized impact issues. Even if site access were to remain unchanged from the *Alternative 3* build-out, the *Alternative 4* build-out transportation infrastructure would offer more "grid-based" options for access to/from and through the South Lake Union neighborhood to the east, and would likely result in better operating conditions along 5th Avenue, abutting the site to the west. A summary of the proposed conceptual changes to the transportation system in the immediate vicinity of the project site is illustrated on Figure 15.

With the reconnection of 6th Avenue, freeway-destined project traffic would still impact Mercer Street, but would also have the option of using other streets crossing SR 99 such as Republican or Harrison Streets, before accessing Mercer and the freeway. This would reduce project impacts to the Mercer Street corridor.

At this time, the improvements have been identified in concept, but the specific changes to the street system have not yet been designed. Also, funding for these improvements has not yet become available. Therefore, it was not possible to conduct a detailed LOS analysis for the *Alterative 4* build-out as has been documented above for both the other *Alternatives*.

Construction Impacts

Construction of the *Alternative 2* build-out, beginning beyond 2010, would generate truck and vehicle traffic associated with earthwork and excavation, delivery of materials to the site and similar types of activities. The highest concentration of truck traffic expected to occur during construction would coincide with the earthwork and excavation activities. At this time it is not known how much material would be removed in conjunction with *Alternative 2* build-out. However, the amount of

traffic associated with construction is expected to be less than the total development related traffic volumes anticipated.

Construction employees would be required to park off-site in neighboring parking garages or parking lots (including the Seattle Center Parking Garage). On-site parking for construction employees could also be provided in the parking stalls constructed with the initial phase, dependent on the construction schedule and the provision of additional parking stalls constructed as part of the initial phase.

Construction impacts associated with the Alternative 3 build-out are anticipated to be similar to Alternative 2 build-out, although would likely be slightly lower.

While construction may cause inconveniences proximate to the site, the impacts would be temporary and are not expected to extend to the surrounding study area. To minimize potential impacts, specific routing plans and scheduling could be identified through a construction vehicle routing plan and coordination with SDOT.

Area Transportation Impacts

Additional traffic generated by the build-out *Alternatives* is anticipated to cause one additional study intersections to degrade to LOS F with the project. Also, the addition of project traffic volumes at those intersections which already operate at LOS F with the *Alternative 1 (No Action)* build-out is likely to increase delay during the AM and PM peak hours. The following list identifies the impact of the project and potential improvements at these intersections;

- **#2. 9th Ave/Broad St** (AM peak hour only) - this intersection would degrade from LOS D to LOS F during the AM peak hour with the build-out project *Alternatives*. The South Lake Union Transportation Study has identified solutions to address both the existing and future operational deficiencies at this intersection.

- **#3. Westlake Ave/Valley St** (AM and PM peak hours) - this intersection would degrade from LOS E to F during the AM peak hour with the build-out project *Alternatives*, and would continue to operate at LOS F during PM peak hour with or without the build-out project *Alternatives*. The South Lake Union Transportation Study has identified solutions to address both the existing and future operational deficiencies at this intersection.

- **#7. Dexter Ave/Mercer St** (PM peak hour only) – this intersection would continue to operate at LOS F during the PM peak hour with or without the build-out project *Alternatives*. Improvements for this intersection have been identified as part of the South Lake Union Transportation Plan.

- **#9. Westlake Ave/Mercer St** (PM peak hour only) – this intersection would continue to operate at LOS F during the PM peak hour with or without the build-out project *Alternatives*. Improvements for this intersection have been identified as part of the South Lake Union Transportation Plan.

- **#10. Fairview Ave/Mercer St** (AM and PM peak hours) – this intersection would continue to operate at LOS F during both the AM and PM peak hours with or without the build-out project *Alternatives*. Improvements for this intersection have been identified as part of the South Lake Union Transportation Plan.

- **#18. Denny Way/Aurora Ave** (AM and PM peak hours) – this intersection would degrade from LOS E to F during the AM peak hour with the build-out project *Alternatives*, and would continue to operate at LOS F during PM peak hour with or without the build-out project *Alternatives*. Improvements for this intersection have been identified as part of the Aurora Avenue improvements included in the Alaskan Way Viaduct project.

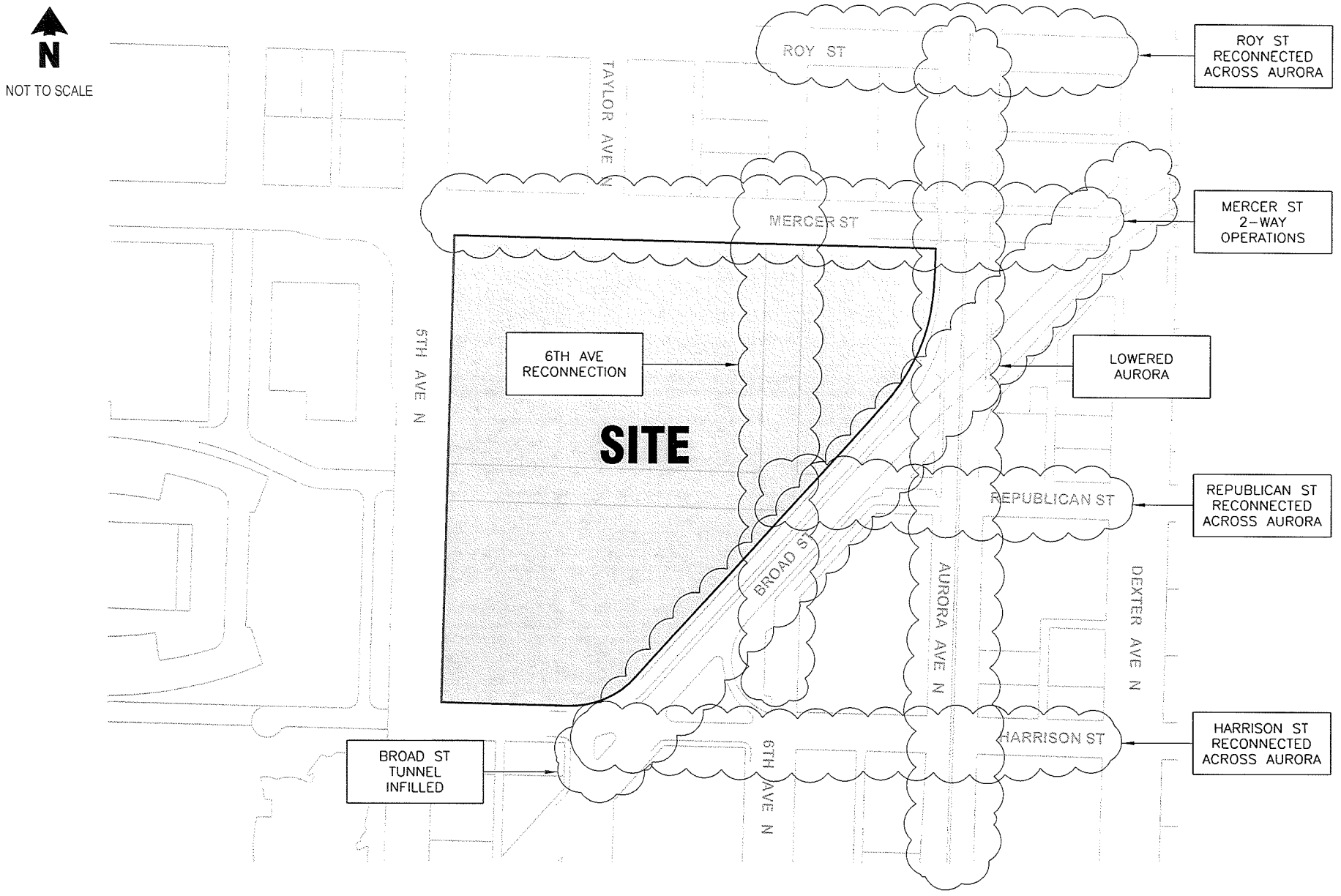

Figure 15
Site Vicinity Infrastructure Improvements

500 Fifth Avenue North

The Transpo Group

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Secondary and Cumulative Impacts

Due to the nature of the transportation analysis conducted for the 500 Fifth Avenue North project, secondary and cumulative impacts have been addressed as part of the primary analysis documented above.

Mitigation Measures

All of the development *Alternatives* have common impacts that could be mitigated with a Transportation Management Program (TMP). In addition, the City's South Lake Union Transportation Plan identifies specific intersection and corridor improvements that were determined to address the long term vision for transportation infrastructure in South Lake Union. Therefore, the following describes potential mitigation measures that could be implemented to reduce or offset the impacts associated with the project.

Transportation Management Program

The City will require that a TMP be developed for the proposed project consistent with the requirements of SDOT Director's Rule 94-3, and the CityDPD's Director's Rule 14-2002 regarding TMPs. An appropriate TMP goal, progressive over time, will be identified through future discussions with City of Seattle DPD and SDOT staff as project plans are further developed. The TMP goals and supporting elements will be consistent with all City TMP requirements.

South Lake Union Transportation Plan

To the extent that the City has identified a transportation vision for the South Lake Union area that includes a substantial number of planned improvements, including conversion of Mercer Street to a two-way boulevard, it is possible that the City could propose that the project be conditioned to participate in funding these improvements on some level, depending on the identified level of impact. The actual level of participation would be the subject of further analysis and discussion, should it be proposed.

Other Traffic Mitigation

In addition to the above, the following intersection improvement could be considered:.

#21. Fairview Ave/Denny Way (PM peak hour only) – this intersection would degrade from LOS E to LOS F during the PM peak hour with the addition of traffic generated by the build-out project *Alternatives*. However, the addition of project traffic generated by the build-out of *Alternatives 2 and 3* would increase intersection traffic volumes by 154 vehicles (3.5 percent) and 138 vehicles (3.1 percent) respectively during the PM peak hour. Optimization of the signal timing (cycle length and splits) at this intersection would improve PM peak hour operations at this intersection to LOS E with the *Alternative 2* build-out and *Alternative 3* build-out.

Potentially Unavoidable Adverse Impacts

This section of the report documents those intersections where traffic generated by the development *Alternatives* would cause unavoidable adverse impacts at study intersections. Impacts at the following locations may be significant, with or without the mitigation measures identified.

- **#22. Denny Way/Stewart St** (AM and PM peak hours) – this intersection would continue to operate at LOS F during both the AM and PM peak hours with or without the build-out project *Alternatives*. However, the addition of project traffic generated by the build-out of *Alternatives 2 and 3* would increase intersection traffic volumes by between 143 (2.8 percent) and 158 (3.1 percent) during the AM peak hour, and between 133 (3.1 percent) and 149 (3.4 percent) during the PM peak hour. Improvement options are limited due to capacity restraints and its close proximity to the I-5 entrance and exit; these constraints could result in a possible unavoidable adverse impact.

- **#24. Howell St/Yale Ave** (AM and PM peak hours) – this intersection would continue to operate at LOS F during both the AM and PM peak hours with or without the build-out project *Alternatives*. However, the addition of project traffic generated by the build-out of *Alternatives 2 and 3* would increase intersection traffic volumes by between 7 (0.4 percent) and 8 (0.4 percent) during the AM peak hour, and between 80 (2.5 percent) and 89 (2.7 percent) during the PM peak hour. Beyond optimization of signal timing, which would not offset project impacts, mitigation options are limited at this intersection and the project could result in a possible unavoidable adverse impact.

Attachment A: LOS Definitions

Highway Capacity Manual, 2000

Signalized intersection level of service (LOS) is defined in terms of the average total vehicle delay of all movements through an intersection. Vehicle delay is a method of quantifying several intangible factors, including driver discomfort, frustration, and lost travel time. Specifically, LOS criteria are stated in terms of average delay per vehicle during a specified time period (for example, the PM peak hour). Vehicle delay is a complex measure based on many variables, including signal phasing (i.e., progression of movements through the intersection), signal cycle length, and traffic volumes with respect to intersection capacity. Table 1 shows LOS criteria for signalized intersections, as described in the *Highway Capacity Manual* (Transportation Research Board, Special Report 209, 2000).

Table 1. Level of Service Criteria for Signalized Intersections

Level of Service	Average Control Delay (sec/veh)	General Description (Signalized Intersections)
A	≤10	Free Flow
B	>10 - 20	Stable Flow (slight delays)
C	>20 - 35	Stable flow (acceptable delays)
D	>35 - 55	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	>55 - 80	Unstable flow (intolerable delay)
F	>80	Forced flow (jammed)

Unsignalized intersection LOS criteria can be further reduced into two intersection types: all-way stop-controlled and two-way stop-controlled. All-way, stop-controlled intersection LOS is expressed in terms of the average vehicle delay of all of the movements, much like that of a signalized intersection. Two-way, stop-controlled intersection LOS is defined in terms of the average vehicle delay of an individual movement(s). This is because the performance of a two-way, stop-controlled intersection is more closely reflected in terms of its individual movements, rather than its performance overall. For this reason, LOS for a two-way, stop-controlled intersection is defined in terms of its individual movements. With this in mind, total average vehicle delay (i.e., average delay of all movements) for a two-way, stop-controlled intersection should be viewed with discretion. Table 2 shows LOS criteria for unsignalized intersections (both all-way and two-way, stop-controlled).

Table 2. Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay (sec/veh)
A	0 - 10
B	>10 - 15
C	>15 - 25
D	>25 - 35
E	>35 - 50
F	>50

Attachment B: LOS Worksheets

The Level of Service Worksheets are on file at Seattle's Department of Planning and Development File No. 3003599 (formerly 2501890).

Attachment C: Trip Generation Worksheets

Trip Generation Worksheet - 500 Fifth Avenue North

7th edition

Alterntive 2/3 - Opening

Proposed Uses Person Trips

Land Use	Size	Trip Rate	Inbound %	ITE Total Veh Trips	Person Trips
Corporate Headquarters Building (LU 714)	**450,000 sfgfa**				AVO = 1.2
Daily		7.98 trips/1,000 sq.ft.	50%	3590	4310
AM Peak Hour		1.49 trips/1,000 sq.ft.	93%	670	805
PM Peak Hour		1.40 trips/1,000 sq.ft.	10%	630	755

500 Fifth Avenue North

Alterntive 2/3 - Opening

Total Person Trips by Mode of Travel

Trip Generation Summary	Percent of Peak Hour	Percent of Daily Trips	Daily Person Trips	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total
Office									
SOV	80%	80%	3450	600	45	645	60	545	605
Carpool	10%	10%	430	75	5	80	10	65	75
Transit/Non-Motorized	10%	10%	430	75	5	80	5	70	75
Total	100%	100%	4310	750	55	805	75	680	755

Trip Generation rates were obtained from Trip Generation *(ITE, 7th Edition, 2003)*

Total Vehicle Trip Generation

Land Use	CP AVO [1]		Daily Vehicle Trips	AM Peak Hour Vehicle Trips In	AM Peak Hour Vehicle Trips Out	AM Peak Hour Vehicle Trips Total	PM Peak Hour Vehicle Trips In	PM Peak Hour Vehicle Trips Out	PM Peak Hour Vehicle Trips Total
Office	2.30		3635	635	45	680	65	575	640
Total			3635	635	45	680	65	575	640

1. Calculations based on local mode-split data from King County CTR.

Trip Generation Worksheet - 500 Fifth Avenue North

7th edition

Alterntive 2 - Build Out

Proposed Uses Person Trips

Land Use	Size	Trip Rate	Inbound %	ITE Total Veh Trips	Person Trips AVO = 1.2
Corporate Headquarters Building (LU 714)	**1,000,000 sfgfa**				
Daily		7.98 trips/1,000 sq.ft.	50%	7980	9575
AM Peak Hour		1.49 trips/1,000 sq.ft.	93%	1490	1790
PM Peak Hour		1.40 trips/1,000 sq.ft.	10%	1400	1680

500 Fifth Avenue North

Alterntive 2 - Build Out

Total Person Trips by Mode of Travel

Trip Generation Summary	Percent of Peak Hour	Percent of Daily Trips	Daily Person Trips	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total
Office									
SOV	50%	50%	4790	830	65	895	85	755	840
Carpool	20%	20%	1915	335	25	360	35	300	335
Transit/Non-Motorized	30%	30%	2870	500	35	535	50	455	505
Total	100%	100%	9575	1665	125	1790	170	1510	1680

Trip Generation rates were obtained from Trip Generation *(ITE, 7th Edition, 2003)*

Total Vehicle Trip Generation

Land Use	CP AVO [1]		Daily Vehicle Trips	AM Peak Hour Vehicle Trips In	AM Peak Hour Vehicle Trips Out	AM Peak Hour Vehicle Trips Total	PM Peak Hour Vehicle Trips In	PM Peak Hour Vehicle Trips Out	PM Peak Hour Vehicle Trips Total
Office	2.30		5625	975	75	1050	100	885	985
Total			5625	975	75	1050	100	885	985

1. Calculations based on local mode-split data from King County CTR.

Trip Generation Worksheet - 500 Fifth Avenue North

7th edition

Alterntive 3 - Build Out

Proposed Uses Person Trips

Land Use	Size	Trip Rate	Inbound %	ITE Total Veh Trips	Person Trips
Corporate Headquarters Building (LU 714)	**900,000 sfgfa**				AVO = 1.2
Daily		7.98 trips/1,000 sq.ft.	50%	7180	8615
AM Peak Hour		1.49 trips/1,000 sq.ft.	93%	1340	1610
PM Peak Hour		1.40 trips/1,000 sq.ft.	10%	1260	1510

500 Fifth Avenue North

Alterntive 3 - Build Out

Total Person Trips by Mode of Travel

Trip Generation Summary	Percent of Peak Hour	Percent of Daily Trips	Daily Person Trips	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total
Office									
SOV	50%	50%	4310	750	55	805	75	680	755
Carpool	20%	20%	1725	300	20	320	30	270	300
Transit/Non-Motorized	30%	30%	2580	445	40	485	45	410	455
Total	100%	100%	8615	1495	115	1610	150	1360	1510

Trip Generation rates were obtained from Trip Generation *(ITE, 7th Edition, 2003)*

Total Vehicle Trip Generation

Land Use	CP AVO [1]		Daily Vehicle Trips	AM Peak Hour Vehicle Trips In	AM Peak Hour Vehicle Trips Out	AM Peak Hour Vehicle Trips Total	PM Peak Hour Vehicle Trips In	PM Peak Hour Vehicle Trips Out	PM Peak Hour Vehicle Trips Total
Office	2.30		5060	880	65	945	90	795	885
Total			5060	880	65	945	90	795	885

1. Calculations based on local mode-split data from King County CTR.

Attachment D: Parking Calculation Worksheets

500 Fifth Avenue North
Parking Demand Calculations
The Transpo Group

Initial Phase - Alternative 2/3
PARKING DEMAND CALCULATIONS

Initial TMP

Office Building Area	420,000	
Employee Density - Office	3.29	(employees/1,000 square feet)
EMPLOYEES	**1382**	
Percent Employees On-Site	85%	
EMPLOYEES ON-SITE	**1175**	

MODE SPLIT - Office		**PEOPLE**
SOV	80%	940
Carpool	10%	118
Transit/Other	10%	118

PARKING STALL DEMAND		**PARKING STALLS**
Office =	**420,000**	
Vehicles (AVO = 1.0/2.3)		991
Short-term office parking (0.10 Stalls/1,000 SF)		42
Office Subtotal		*1033*

OFFICE PARKING DEMAND (STALLS) = 1033

500 Fifth Avenue North
Parking Demand Calculations
The Transpo Group

Initial Phase - Alternative 2/3
PARKING DEMAND CALCULATIONS

Short-Term TMP

Office Building Area	420,000	
Employee Density - Office	3.29	(employees/1,000 square feet)
EMPLOYEES	**1382**	
Percent Employees On-Site	85%	
EMPLOYEES ON-SITE	**1175**	

MODE SPLIT - Office		**PEOPLE**
SOV	70%	823
Carpool	15%	176
Transit/Other	15%	176

PARKING STALL DEMAND		**PARKING STALLS**
Office =	**420,000**	
Vehicles (AVO = 1.0/2.3)		900
Short-term office parking (0.10 Stalls/1,000 SF)		42
Office Subtotal		*942*

OFFICE PARKING DEMAND (STALLS) = 942

500 Fifth Avenue North
Parking Demand Calculations
The Transpo Group

Initial Phase - Alternative 2/3
PARKING DEMAND CALCULATIONS

Long-Term TMP

Office Building Area	420,000	
Employee Density - Office	3.29	(employees/1,000 square feet)
EMPLOYEES	**1382**	
Percent Employees On-Site	85%	
EMPLOYEES ON-SITE	**1175**	

MODE SPLIT - Office		**PEOPLE**
SOV	50%	588
Carpool	20%	235
Transit/Other	30%	353

PARKING STALL DEMAND		**PARKING STALLS**
Office =	**420,000**	
Vehicles (AVO = 1.0/2.3)		690
Short-term office parking (0.10 Stalls/1,000 SF)		42
Office Subtotal		*732*

OFFICE PARKING DEMAND (STALLS) = 732

500 Fifth Avenue North
Parking Demand Calculations
The Transpo Group

2020 Build Out - Alternative 2
PARKING DEMAND CALCULATIONS
100% Office
Long-Term TMP

Office Building Area	1,000,000	
Employee Density - Office	3.29	(employees/1,000 square feet)
EMPLOYEES	**3290**	
Percent Employees On-Site	85%	
EMPLOYEES ON-SITE	**2797**	

MODE SPLIT - Office		**PEOPLE**
SOV	50%	1399
Carpool	20%	559
Transit/Other	30%	839

PARKING STALL DEMAND		**PARKING STALLS**
Office =	**1,000,000**	
Vehicles (AVO = 1.0/2.3)		1642
Short-term office parking (0.10 Stalls/1,000 SF)		100
Office Subtotal		*1742*

TOTAL PARKING DEMAND (STALLS) = 1742

500 Fifth Avenue North
Parking Demand Calculations
The Transpo Group

2020 Build Out - Alternative 3
PARKING DEMAND CALCULATIONS
100% Office
Long-Term TMP

Office Building Area	900,000	
Employee Density - Office	3.29	(employees/1,000 square feet)
EMPLOYEES	**2961**	
Percent Employees On-Site	85%	
EMPLOYEES ON-SITE	**2517**	

MODE SPLIT - Office		**PEOPLE**
SOV	50%	1259
Carpool	20%	503
Transit/Other	30%	755

PARKING STALL DEMAND		**PARKING STALLS**
Office =	**900,000**	
Vehicles (AVO = 1.0/2.3)		1478
Short-term office parking (0.10 Stalls/1,000 SF)		90
Office Subtotal		*1568*

TOTAL PARKING DEMAND (STALLS) = 1568

Appendix B – Seattle Center Parking Utilization
November 2003 – December 2004

			Percent Full			Weekday Available Spaces in Other Seattle Center Parking Facilities				
							total spaces		total spaces	Total Spaces
Day	Date	Shift	Fifth Ave % Full	MSG % Full	1st N % Full	MSG	1439	1st Ave N	654	Available
							# available		# available	
Wed	Wednesday, December 31, 2003	PM	100	5	1					
Thu	Thursday, March 18, 2004	AM	100	90	100	10%	143.9	0%	0	144
Sat	Saturday, March 20, 2004	AM	100	75	95					
Sat	Saturday, April 10, 2004	AM	100	20	85					
Sat	Saturday, May 29, 2004	AM	100	75	70					
Sun	Sunday, May 30, 2004	AM	100	70	55					
Mon	Monday, May 31, 2004	AM	100	60	40					
Fri	Friday, June 18, 2004	PM	100	60	100					
Sat	Saturday, July 17, 2004	PM	100	60	99					
Sun	Sunday, July 18, 2004	PM	100	53	60					
Mon	Monday, August 23, 2004	AM	100	90	100	10%	143.9	0%	0	144
Fri	Friday, September 03, 2004	PM	100	30	25					
Sat	Saturday, September 04, 2004	AM	100	35	50					
Sat	Saturday, September 04, 2004	PM	100	100	35					
Sun	Sunday, September 05, 2004	AM	100	88	29					
Mon	Monday, September 06, 2004	AM	100	40	20					
Fri	Friday, October 22, 2004	PM	100	95	95					
Sun	Sunday, March 28, 2004	PM	99	45	98					
Mon	Monday, August 23, 2004	PM	99	99	97					
Sun	Sunday, September 05, 2004	PM	98	85	55					
Fri	Friday, March 26, 2004	PM	95	30	90					
Fri	Friday, April 02, 2004	PM	95	55	97					
Sun	Sunday, May 30, 2004	PM	95	95	70					
Tue	Tuesday, August 24, 2004	AM	95	85	100	15%	215.85	0%	0	216
Tue	Tuesday, August 24, 2004	PM	92	80	90					
Fri	Friday, November 21, 2003	PM	90	90	85					
Fri	Friday, December 19, 2003	PM	90	90	65					
Sat	Saturday, December 27, 2003	PM	90	90	75					
Fri	Friday, March 12, 2004	PM	90	80	98					
Sat	Saturday, October 02, 2004	AM	90	75	80					
Sun	Sunday, October 10, 2004	AM	90	65	100					
Fri	Friday, November 26, 2004	PM	90	85	70					
Mon	Monday, November 29, 2004	AM	90	30	40	70%	1007.3	60%	392.4	1400
Sun	Sunday, November 30, 2003	AM	85	1	25					
Thu	Thursday, January 22, 2004	PM	85	75	60					
Sat	Saturday, January 24, 2004	PM	85	98	60					
Sun	Sunday, February 22, 2004	PM	85	45	65					
Thu	Thursday, March 18, 2004	PM	85	90	90					
Sat	Saturday, August 07, 2004	PM	85	85	97					
Tue	Tuesday, October 12, 2004	PM	85	60	100					
Fri	Friday, November 12, 2004	PM	85	90	85					
Sat	Saturday, November 29, 2003	PM	80	95	75					
Tue	Tuesday, January 13, 2004	PM	80	40	90					

			Percent Full			Weekday Available Spaces in Other Seattle Center Parking Facilities					
							total			total	
Day	**Date**	**Shift**	**Fifth Ave % Full**	**MSG % Full**	**1st N % Full**	MSG	spaces 1439		1st Ave N	spaces 654	**Total Spaces Available**
Sat	Saturday, January 31, 2004	PM	80	50	65						
Fri	Friday, February 27, 2004	PM	80	35	92						
Mon	Monday, April 12, 2004	PM	80	35	75						
Tue	Tuesday, August 31, 2004	PM	80	40	98						
Fri	Friday, October 01, 2004	PM	80	60	55						
Fri	Friday, December 05, 2003	PM	75	80	70						
Sat	Saturday, December 13, 2003	AM	75	75	100						
Mon	Monday, January 12, 2004	PM	75	65	75						
Thu	Thursday, February 05, 2004	PM	75	85	90						
Thu	Thursday, February 19, 2004	PM	75	25	90						
Tue	Tuesday, July 27, 2004	PM	75	60	85						
Mon	Monday, August 30, 2004	PM	75	40	100						
Fri	Friday, September 03, 2004	AM	75	25	20	75%	1079.25		80%	523.2	1602
Sat	Saturday, November 27, 2004	AM	75	45	35						
Tue	Tuesday, March 09, 2004	PM	70	40	90						
Sat	Saturday, March 13, 2004	AM	70	20	25						
Sun	Sunday, March 21, 2004	PM	70	30	40						
Sat	Saturday, November 29, 2003	AM	65	35	65						
Sun	Sunday, December 14, 2003	AM	65	75	50						
Sat	Saturday, December 20, 2003	PM	65	75	3						
Tue	Tuesday, December 23, 2003	PM	65	85	80						
Sun	Sunday, December 28, 2003	AM	65	60	70						
Fri	Friday, January 02, 2004	PM	65	40	70						
Mon	Monday, January 05, 2004	PM	65	40	65						
Fri	Friday, January 09, 2004	PM	65	50	65						
Wed	Wednesday, February 25, 2004	PM	65	45	70						
Thu	Thursday, February 26, 2004	PM	65	50	70						
Thu	Thursday, April 08, 2004	PM	65	20	90						
Sat	Saturday, May 29, 2004	PM	65	70	75						
Mon	Monday, July 05, 2004	PM	65	40	98						
Fri	Friday, July 16, 2004	PM	65	20	50						
Sat	Saturday, August 07, 2004	AM	65	3	8						
Mon	Monday, August 30, 2004	AM	65	5	25	95%	1367.05		75%	490.5	2021
Sat	Saturday, November 06, 2004	PM	65	70	95						
Sun	Sunday, November 07, 2004	PM	65	35	70						
Wed	Wednesday, December 01, 2004	PM	65	45	80						
Tue	Tuesday, November 25, 2003	PM	60	45	55						
Sat	Saturday, January 24, 2004	AM	60	50	75						
Thu	Thursday, February 12, 2004	PM	60	80	60						
Sun	Sunday, February 15, 2004	AM	60	45	50						
Sun	Sunday, March 07, 2004	PM	60	25	55						
Wed	Wednesday, March 24, 2004	PM	60	40	85						
Sat	Saturday, March 27, 2004	AM	60	20	40						
Sun	Sunday, April 04, 2004	PM	60	15	65						

			Percent Full			Weekday Available Spaces in Other Seattle Center Parking Facilities				
							total spaces		total spaces	**Total Spaces**
Day	**Date**	**Shift**	**Fifth Ave % Full**	**MSG % Full**	**1st N % Full**	MSG	1439	1st Ave N	654	**Available**
Sat	Saturday, April 24, 2004	AM	60	50	25					
Sat	Saturday, June 12, 2004	AM	60	40	50					
Mon	Monday, August 09, 2004	AM	60	5	40	95%	1367.05	60%	392.4	1858
Sat	Saturday, August 21, 2004	AM	60	10	3					
Fri	Friday, November 05, 2004	PM	60	85	80					
Sat	Saturday, November 20, 2004	PM	60	70	45					
Sun	Sunday, November 28, 2004	PM	60	35	80					
Mon	Monday, February 02, 2004	PM	55	25	65					
Sat	Saturday, May 22, 2004	PM	55	65	98					
Sat	Saturday, June 05, 2004	PM	55	85	25					
Sun	Sunday, July 04, 2004	AM	55	2	5					
Sun	Sunday, July 11, 2004	AM	55	4	3					
Sat	Saturday, July 24, 2004	PM	55	20	90					
Sun	Sunday, August 01, 2004	PM	55	3	80					
Thu	Thursday, August 05, 2004	PM	55	12	95					
Sun	Sunday, August 15, 2004	AM	55	60	5					
Mon	Monday, August 16, 2004	AM	55	5	20	95%	1367.05	80%	523.2	2054
Wed	Wednesday, August 18, 2004	AM	55	3	8	97%	1395.83	92%	601.68	2161
Sun	Sunday, August 22, 2004	AM	55	20	10					
Sun	Sunday, August 29, 2004	AM	55	2	5					
Tue	Tuesday, September 07, 2004	AM	55	3	10	97%	1395.83	90%	588.6	2410
Thu	Thursday, September 09, 2004	PM	55	10	95					
Sat	Saturday, September 18, 2004	PM	55	40	99					
Sat	Saturday, October 02, 2004	PM	55	55	40					
Sat	Saturday, October 23, 2004	AM	55	60	10					
Fri	Friday, October 29, 2004	PM	55	90	65					
Sun	Sunday, November 14, 2004	PM	55	35	70					
Sun	Sunday, November 23, 2003	AM	50	75	35					
Fri	Friday, December 12, 2003	PM	50	70	20					
Fri	Friday, December 26, 2003	AM	50	60	20	40%	575.6	80%	523.2	1295
Sat	Saturday, December 27, 2003	AM	50	50	50					
Mon	Monday, December 29, 2003	AM	50	10	65	90%	1295.1	35%	228.9	1622
Tue	Tuesday, January 27, 2004	PM	50	25	55					
Sat	Saturday, February 21, 2004	PM	50	50	90					
Sat	Saturday, February 28, 2004	PM	50	80	80					
Sun	Sunday, February 29, 2004	PM	50	45	85					
Sat	Saturday, March 13, 2004	PM	50	80	50					
Fri	Friday, April 09, 2004	AM	50	25	50	75%	1079.25	50%	327	1537
Sat	Saturday, April 24, 2004	PM	50	45	3					
Sun	Sunday, May 02, 2004	AM	50	5	12					
Fri	Friday, May 28, 2004	AM	50	5	20	95%	1367.05	80%	523.2	1890
Mon	Monday, May 31, 2004	PM	50	45	20					
Sat	Saturday, June 19, 2004	AM	50	25	35					
Sat	Saturday, July 03, 2004	AM	50	5	8					
Tue	Tuesday, July 20, 2004	AM	50	10	15	90%	1295.1	85%	555.9	2113
Thu	Thursday, July 22, 2004	AM	50	5	100	95%	1367.05	0%	0	1367

			Percent Full			Weekday Available Spaces in Other Seattle Center Parking Facilities				
							total		total	
Day	Date	Shift	Fifth Ave % Full	MSG % Full	1st N % Full	MSG	spaces 1439	1st Ave N	spaces 654	Total Spaces Available
Sun	Sunday, July 25, 2004	AM	50	1	3					
Tue	Tuesday, August 10, 2004	AM	50	10	10	90%	1295.1	90%	588.6	1982
Wed	Wednesday, August 11, 2004	AM	50	8	12	92%	1323.88	88%	575.52	1998
Thu	Thursday, August 12, 2004	AM	50	10	20	90%	1295.1	80%	523.2	1884
Tue	Tuesday, August 17, 2004	AM	50	3	15	97%	1395.83	85%	555.9	2017
Mon	Monday, September 13, 2004	PM	50	5	60					
Tue	Tuesday, September 14, 2004	AM	50	95	7	5%	71.95	93%	608.22	1073
Wed	Wednesday, November 10, 2004	PM	50	30	50					
Sat	Saturday, November 20, 2004	AM	50	75	30					
Sun	Sunday, November 21, 2004	PM	50	35	80					
Fri	Friday, November 26, 2004	AM	50	40	40	60%	863.4	60%	392.4	1256
Sat	Saturday, November 27, 2004	PM	50	85	50					
Sat	Saturday, November 22, 2003	AM	45	15	35					
Sun	Sunday, November 30, 2003	PM	45	75	80					
Sat	Saturday, December 06, 2003	PM	45	90	5					
Thu	Thursday, December 11, 2003	PM	45	10	15					
Sat	Saturday, December 13, 2003	PM	45	80	20					
Sun	Sunday, January 04, 2004	PM	45	2	65					
Wed	Wednesday, January 07, 2004	PM	45	25	40					
Sun	Sunday, March 14, 2004	PM	45	7	20					
Sat	Saturday, April 03, 2004	AM	45	10	15					
Sat	Saturday, April 17, 2004	AM	45	70	50					
Sat	Saturday, June 12, 2004	PM	45	45	10					
Sun	Sunday, June 13, 2004	AM	45	35	30					
Sat	Saturday, June 26, 2004	AM	45	10	25					
Mon	Monday, July 26, 2004	AM	45	5	5	95%	1367.05	95%	621.3	2250
Wed	Wednesday, July 28, 2004	AM	45	7	15	93%	1338.27	85%	555.9	2287
Thu	Thursday, July 29, 2004	AM	45	10	10	90%	1295.1	90%	588.6	2145
Fri	Friday, July 30, 2004	AM	45	5	15	95%	1367.05	85%	555.9	2185
Sun	Sunday, September 19, 2004	PM	45	5	80					
Sun	Sunday, October 03, 2004	AM	45	40	95					
Fri	Friday, November 19, 2004	PM	45	65	30					
Sat	Saturday, November 22, 2003	PM	40	55	35					
Wed	Wednesday, December 17, 2003	PM	40	80	70					
Sat	Saturday, December 20, 2003	AM	40	80	10					
Fri	Friday, December 26, 2003	PM	40	60	30					
Tue	Tuesday, December 30, 2003	AM	40	10	85	90%	1295.1	15%	98.1	1393
Fri	Friday, January 16, 2004	PM	40	70	25					
Fri	Friday, January 30, 2004	PM	40	85	65					
Tue	Tuesday, February 03, 2004	PM	40	40	98					
Sat	Saturday, February 14, 2004	AM	40	20	60					
Sat	Saturday, February 14, 2004	PM	40	65	45					
Tue	Tuesday, February 17, 2004	AM	40	10	35	90%	1295.1	65%	425.1	1720
Sat	Saturday, March 06, 2004	AM	40	10	65					
Sat	Saturday, April 03, 2004	PM	40	40	10					
Wed	Wednesday, April 14, 2004	PM	40	50	90					

			Percent Full			Weekday Available Spaces in Other Seattle Center Parking Facilities				
							total		total	
Day	Date	Shift	Fifth Ave % Full	MSG % Full	1st N % Full	MSG	spaces 1439	1st Ave N	spaces 654	Total Spaces Available
Tue	Tuesday, May 11, 2004	AM	40	15	20	85%	1223.15	80%	523.2	1812
Sat	Saturday, May 15, 2004	AM	40	5	15					
Sat	Saturday, May 15, 2004	PM	40	45	15					
Sat	Saturday, June 19, 2004	PM	40	25	10					
Sat	Saturday, July 03, 2004	PM	40	15	80					
Mon	Monday, July 05, 2004	AM	40	3	5	97%	1395.83	95%	621.3	2377
Tue	Tuesday, July 06, 2004	AM	40	10	15	90%	1295.1	85%	555.9	2047
Tue	Tuesday, July 13, 2004	AM	40	4	10	96%	1381.44	90%	588.6	2166
Wed	Wednesday, July 21, 2004	AM	40	10	15	90%	1295.1	85%	555.9	2113
Fri	Friday, July 23, 2004	AM	40	8	10	92%	1323.88	90%	588.6	2239
Sat	Saturday, July 24, 2004	AM	40	20	25					
Sat	Saturday, July 31, 2004	PM	40	75	3					
Tue	Tuesday, August 03, 2004	AM	40	5	7	95%	1367.05	93%	608.22	2270
Sun	Sunday, August 08, 2004	AM	40	3	5					
Sat	Saturday, August 14, 2004	PM	40	8	12					
Thu	Thursday, August 19, 2004	AM	40	10	20	90%	1295.1	80%	523.2	1916
Fri	Friday, August 20, 2004	AM	40	5	15	95%	1367.05	85%	555.9	1988
Fri	Friday, August 27, 2004	AM	40	5	10	95%	1367.05	90%	588.6	2021
Mon	Monday, September 13, 2004	AM	40	5	7	95%	1367.05	93%	608.22	2335
Mon	Monday, September 27, 2004	PM	40	60	80					
Sat	Saturday, October 09, 2004	AM	40	35	50					
Sat	Saturday, October 09, 2004	PM	40	25	96					
Sun	Sunday, October 17, 2004	AM	40	65	45					
Sat	Saturday, October 23, 2004	PM	40	80	50					
Thu	Thursday, October 28, 2004	PM	40	45	80					
Sat	Saturday, October 30, 2004	PM	40	80	40					
Tue	Tuesday, November 30, 2004	AM	40	8	15	92%	1323.88	85%	555.9	2109
Sat	Saturday, December 06, 2003	AM	35	65	35	35%	503.65	65%	425.1	1256
Thu	Thursday, December 18, 2003	PM	35	65	25					
Mon	Monday, December 22, 2003	PM	35	45	2					
Wed	Wednesday, December 24, 2003	PM	35	65	20					
Fri	Friday, January 23, 2004	PM	35	95	60					
Sun	Sunday, January 25, 2004	AM	35	75	40					
Sat	Saturday, March 06, 2004	PM	35	90	75					
Thu	Thursday, April 08, 2004	AM	35	25	55	75%	1079.25	45%	294.3	1504
Sat	Saturday, April 10, 2004	PM	35	40	2					
Thu	Thursday, April 15, 2004	PM	35	65	60					
Fri	Friday, April 16, 2004	AM	35	40	50	60%	863.4	50%	327	1190
Sat	Saturday, May 01, 2004	AM	35	5	10					
Sat	Saturday, May 01, 2004	PM	35	25	20					
Fri	Friday, May 07, 2004	PM	35	25	50					
Sat	Saturday, May 08, 2004	PM	35	55	15					
Sun	Sunday, May 09, 2004	AM	35	45	7					
Mon	Monday, May 10, 2004	AM	35	10	15	90%	1295.1	85%	555.9	2211
Wed	Wednesday, May 12, 2004	AM	35	12	20	88%	1266.32	80%	523.2	2117
Fri	Friday, May 14, 2004	AM	35	15	40	85%	1223.15	60%	392.4	1812
Sat	Saturday, May 22, 2004	AM	35	20	25					

			Percent Full			Weekday Available Spaces in Other Seattle Center Parking Facilities				
							total spaces		total spaces	Total Spaces
Day	Date	Shift	Fifth Ave % Full	MSG % Full	1st N % Full	MSG	1439	1st Ave N	654	Available
Sun	Sunday, June 06, 2004	AM	35	5	10					
Sun	Sunday, June 20, 2004	AM	35	5	10					
Fri	Friday, July 02, 2004	AM	35	10	15	90%	1295.1	85%	555.9	2080
Wed	Wednesday, July 07, 2004	AM	35	5	20	95%	1367.05	80%	523.2	2250
Thu	Thursday, July 08, 2004	AM	35	10	15	90%	1295.1	85%	555.9	2047
Mon	Monday, July 12, 2004	AM	35	3	10	97%	1395.83	90%	588.6	2115
Thu	Thursday, July 15, 2004	AM	35	10	10	90%	1295.1	90%	588.6	2080
Tue	Tuesday, July 27, 2004	AM	35	3	8	97%	1395.83	92%	601.68	2292
Mon	Monday, August 02, 2004	AM	35	5	20	95%	1367.05	80%	523.2	2217
Tue	Tuesday, August 03, 2004	PM	35	40	15					
Wed	Wednesday, August 04, 2004	AM	35	10	15	90%	1295.1	85%	555.9	1982
Fri	Friday, August 06, 2004	AM	35	10	85	90%	1295.1	15%	98.1	1426
Fri	Friday, August 13, 2004	PM	35	20	35					
Wed	Wednesday, August 25, 2004	AM	35	5	20	95%	1367.05	80%	523.2	1956
Thu	Thursday, August 26, 2004	AM	35	10	15	90%	1295.1	85%	555.9	1949
Sat	Saturday, August 28, 2004	AM	35	10	15					
Tue	Tuesday, August 31, 2004	AM	35	10	15	90%	1295.1	85%	555.9	2047
Wed	Wednesday, September 01, 2004	PM	35	30	98					
Thu	Thursday, September 02, 2004	AM	35	4	20	96%	1381.44	80%	523.2	2101
Wed	Wednesday, September 08, 2004	PM	35	7	75					
Sun	Sunday, September 12, 2004	AM	35	2	3					
Sat	Saturday, September 25, 2004	PM	35	45	5					
Sun	Sunday, September 26, 2004	AM	35	2	5					
Tue	Tuesday, September 28, 2004	PM	35	20	96					
Tue	Tuesday, October 19, 2004	PM	35	35	70					
Sun	Sunday, October 31, 2004	AM	35	20	5					
Sat	Saturday, November 13, 2004	PM	35	75	50					
Tue	Tuesday, December 02, 2003	AM	30	10	25	90%	1295.1	75%	490.5	2145
Wed	Wednesday, December 03, 2003	PM	30	35	60					
Sat	Saturday, February 07, 2004	AM	30	40	30					
Tue	Tuesday, February 10, 2004	PM	30	40	80					
Thu	Thursday, February 19, 2004	AM	30	20	60	80%	1151.2	40%	261.6	1413
Fri	Friday, February 20, 2004	AM	30	15	60	85%	1223.15	40%	261.6	1583
Fri	Friday, February 27, 2004	AM	30	15	25	85%	1223.15	75%	490.5	1910
Thu	Thursday, March 04, 2004	AM	30	10	50	90%	1295.1	50%	327	1949
Fri	Friday, March 05, 2004	PM	30	70	65					
Sun	Sunday, March 07, 2004	AM	30	40	25					
Fri	Friday, March 26, 2004	AM	30	10	25	90%	1295.1	75%	490.5	1916
Tue	Tuesday, April 06, 2004	AM	30	20	20	80%	1151.2	80%	523.2	1805
Wed	Wednesday, April 07, 2004	AM	30	20	30	80%	1151.2	70%	457.8	1707
Sun	Sunday, April 18, 2004	AM	30	40	20					
Mon	Monday, April 26, 2004	AM	30	6	5	94%	1352.66	95%	621.3	2464
Tue	Tuesday, April 27, 2004	AM	30	5	10	95%	1367.05	90%	588.6	2283
Sun	Sunday, May 16, 2004	AM	30	25	50	75%	1079.25	50%	327	1635
Fri	Friday, May 28, 2004	PM	30	20	10					
Tue	Tuesday, June 08, 2004	AM	30	10	8	90%	1295.1	92%	601.68	2289
Wed	Wednesday, June 09, 2004	PM	30	10	5					

			Percent Full			Weekday Available Spaces in Other Seattle Center Parking Facilities				
							total spaces		total spaces	Total Spaces
Day	Date	Shift	Fifth Ave % Full	MSG % Full	1st N % Full	MSG	1439	1st Ave N	654	Available
Fri	Friday, June 11, 2004	PM	30	55	85					
Mon	Monday, June 14, 2004	AM	30	10	15	90%	1295.1	85%	555.9	2047
Tue	Tuesday, June 15, 2004	AM	30	8	5	92%	1323.88	95%	621.3	2338
Wed	Wednesday, June 23, 2004	AM	30	15	20	85%	1223.15	80%	523.2	2008
Fri	Friday, June 25, 2004	AM	30	15	10	85%	1223.15	90%	588.6	2073
Sat	Saturday, June 26, 2004	PM	30	60	10					
Thu	Thursday, July 01, 2004	PM	30	10	85					
Fri	Friday, July 09, 2004	PM	30	10	10					
Wed	Wednesday, July 14, 2004	AM	30	10	10	90%	1295.1	90%	588.6	2015
Thu	Thursday, August 05, 2004	AM	30	2	45	98%	1410.22	55%	359.7	1835
Thu	Thursday, August 12, 2004	PM	30	35	5					
Fri	Friday, October 08, 2004	AM	30	30	40	70%	1007.3	60%	392.4	1531
Sat	Saturday, October 16, 2004	PM	30	80	55					
Sun	Sunday, October 24, 2004	AM	30	8	60					
Thu	Thursday, November 04, 2004	AM	30	10	15	90%	1295.1	85%	555.9	2015
Fri	Friday, November 05, 2004	AM	30	40	25	60%	863.4	75%	490.5	1616
Fri	Friday, November 19, 2004	AM	30	40	15	60%	863.4	85%	555.9	1648
Wed	Wednesday, November 19, 2003	AM	25	10	20	90%	1295.1	80%	523.2	2243
Fri	Friday, November 28, 2003	PM	25	80	70					
Sun	Sunday, December 21, 2003	AM	25	35	15					
Sun	Sunday, January 04, 2004	AM	25	2	1					
Mon	Monday, January 05, 2004	AM	25	10	15	90%	1295.1	85%	555.9	2211
Sun	Sunday, January 11, 2004	PM	25	75	25					
Mon	Monday, January 26, 2004	AM	25	5	10	95%	1367.05	90%	588.6	2250
Sat	Saturday, January 31, 2004	AM	25	10	12					
Sat	Saturday, February 21, 2004	AM	25	15	20					
Sat	Saturday, February 28, 2004	AM	25	9	5					
Sun	Sunday, February 29, 2004	AM	25	40	25					
Wed	Wednesday, March 31, 2004	AM	25	5	20	95%	1367.05	80%	523.2	2348
Fri	Friday, April 02, 2004	AM	25	20	25	80%	1151.2	75%	490.5	2198
Sun	Sunday, April 04, 2004	AM	25	10	10					
Wed	Wednesday, April 14, 2004	PM	25	5	45					
Mon	Monday, April 19, 2004	PM	25	5	7					
Wed	Wednesday, April 21, 2004	AM	25	5	7	95%	1367.05	93%	608.22	2433
Fri	Friday, April 23, 2004	PM	25	40	25					
Wed	Wednesday, April 28, 2004	AM	25	20	10	80%	1151.2	90%	588.6	2001
Thu	Thursday, April 29, 2004	AM	25	20	50	80%	1151.2	50%	327	1609
Tue	Tuesday, May 04, 2004	PM	25	15	20					
Mon	Monday, May 17, 2004	AM	25	5	7	95%	1367.05	93%	608.22	2335
Fri	Friday, May 21, 2004	AM	25	15	15	85%	1223.15	85%	555.9	2008
Sun	Sunday, May 23, 2004	AM	25	25	15					
Thu	Thursday, June 03, 2004	PM	25	50	60					
Wed	Wednesday, June 09, 2004	AM	25	10	15	90%	1295.1	85%	555.9	2113
Fri	Friday, June 18, 2004	AM	25	5	10	95%	1367.05	90%	588.6	2446
Tue	Tuesday, June 22, 2004	AM	25	10	15	90%	1295.1	85%	555.9	2178
Tue	Tuesday, June 29, 2004	AM	25	10	15	90%	1295.1	85%	555.9	2178
Wed	Wednesday, June 30, 2004	AM	25	15	20	85%	1223.15	80%	523.2	2008

			Percent Full			Weekday Available Spaces in Other Seattle Center Parking Facilities				
							total		total	
Day	Date	Shift	Fifth Ave % Full	MSG % Full	1st N % Full	MSG	spaces 1439	1st Ave N	spaces 654	Total Spaces Available
Fri	Friday, July 09, 2004	AM	25	5	10	95%	1367.05	90%	588.6	2413
Sat	Saturday, July 10, 2004	AM	25	10	10					
Fri	Friday, July 23, 2004	PM	25	10	10					
Wed	Wednesday, July 28, 2004	PM	25	15	10					
Sat	Saturday, August 21, 2004	PM	25	75	10					
Sat	Saturday, August 28, 2004	PM	25	2	5					
Wed	Wednesday, September 08, 2004	AM	25	8	10	92%	1323.88	90%	588.6	2370
Fri	Friday, September 10, 2004	AM	25	15	10	85%	1223.15	90%	588.6	2139
Sat	Saturday, September 11, 2004	AM	25	10	5					
Wed	Wednesday, September 15, 2004	AM	25	3	10	97%	1395.83	90%	588.6	2442
Sat	Saturday, October 16, 2004	AM	25	25	60					
Mon	Monday, November 08, 2004	AM	25	15	8	85%	1223.15	92%	601.68	2250
Thu	Thursday, November 11, 2004	AM	25	5	60	95%	1367.05	40%	261.6	1629
Fri	Friday, November 12, 2004	AM	25	15	20	85%	1223.15	80%	523.2	1746
Wed	Wednesday, November 17, 2004	AM	25	10	10	90%	1295.1	90%	588.6	2211
Thu	Thursday, November 18, 2004	AM	25	10	10	90%	1295.1	90%	588.6	2145
Tue	Tuesday, November 23, 2004	AM	25	10	15	90%	1295.1	85%	555.9	2015
Mon	Monday, November 29, 2004	AM	25	3	7	87%	1251.93	93%	608.22	2220
Wed	Wednesday, December 10, 2003	PM	20	65	15					
Sat	Saturday, January 10, 2004	PM	20	75	65					
Fri	Friday, January 16, 2004	PM	20	10	10					
Sat	Saturday, January 17, 2004	PM	20	80	5					
Tue	Tuesday, January 20, 2004	AM	20	5	5	95%	1367.05	95%	621.3	2544
Fri	Friday, January 23, 2004	AM	20	20	15	80%	1151.2	85%	555.9	2263
Sun	Sunday, January 25, 2004	PM	20	75	55					
Wed	Wednesday, January 28, 2004	PM	20	10	10					
Wed	Wednesday, January 28, 2004	PM	20	65	10					
Thu	Thursday, January 29, 2004	PM	20	10	10					
Mon	Monday, February 02, 2004	AM	20	15	25	85%	1223.15	75%	490.5	2237
Wed	Wednesday, February 04, 2004	PM	20	20	10					
Thu	Thursday, February 05, 2004	PM	20	10	10					
Fri	Friday, February 06, 2004	AM	20	10	10	90%	1295.1	90%	588.6	2309
Fri	Friday, February 06, 2004	PM	20	30	60					
Tue	Tuesday, February 10, 2004	AM	20	5	10	95%	1367.05	90%	588.6	2413
Sun	Sunday, February 15, 2004	PM	20	10	15					
Mon	Monday, February 16, 2004	AM	20	5	70	95%	1367.05	30%	196.2	1596
Wed	Wednesday, March 03, 2004	AM	20	3	10	97%	1395.83	90%	588.6	2213
Wed	Wednesday, March 03, 2004	PM	20	50	5					
Fri	Friday, March 05, 2004	AM	20	10	65	90%	1295.1	35%	228.9	1982
Wed	Wednesday, March 17, 2004	AM	20	7	10	93%	1338.27	90%	588.6	2221
Fri	Friday, March 19, 2004	PM	20	50	5					
Mon	Monday, March 22, 2004	AM	20	10	15	90%	1295.1	85%	555.9	2374
Tue	Tuesday, March 23, 2004	AM	20	20	15	80%	1151.2	85%	555.9	1805
Wed	Wednesday, March 24, 2004	AM	20	3	12	97%	1395.83	88%	575.52	2364
Thu	Thursday, April 01, 2004	AM	20	20	20	80%	1151.2	80%	523.2	2165
Mon	Monday, April 05, 2004	AM	20	15	20	85%	1223.15	80%	523.2	2237
Tue	Tuesday, April 13, 2004	AM	20	10	65	90%	1295.1	35%	228.9	1655

			Percent Full			Weekday Available Spaces in Other Seattle Center Parking Facilities				
							total spaces		total spaces	
Day	**Date**	**Shift**	**Fifth Ave % Full**	**MSG % Full**	**1st N % Full**	MSG	1439	1st Ave N	654	**Total Spaces Available**
Fri	Friday, April 16, 2004	PM	20	65	25					
Tue	Tuesday, April 20, 2004	AM	20	20	25	80%	1151.2	75%	490.5	2100
Tue	Tuesday, May 04, 2004	AM	20	5	12	95%	1367.05	88%	575.52	2237
Sat	Saturday, May 08, 2004	AM	20	20	15					
Wed	Wednesday, May 12, 2004	PM	20	50	15					
Tue	Tuesday, May 18, 2004	AM	20	15	15	85%	1223.15	85%	555.9	2270
Mon	Monday, May 24, 2004	AM	20	10	15	90%	1295.1	85%	555.9	2309
Wed	Wednesday, May 26, 2004	AM	20	8	12	92%	1323.88	88%	575.52	2194
Thu	Thursday, May 27, 2004	AM	20	15	10	85%	1223.15	90%	588.6	2073
Tue	Tuesday, June 01, 2004	AM	20	10	10	90%	1295.1	90%	588.6	2276
Wed	Wednesday, June 02, 2004	AM	20	15	10	85%	1223.15	90%	588.6	2204
Fri	Friday, June 04, 2004	PM	20	5	5					
Thu	Thursday, June 10, 2004	AM	20	10	15	90%	1295.1	85%	555.9	2178
Thu	Thursday, June 10, 2004	PM	20	55	10					
Mon	Monday, June 21, 2004	AM	20	5	10	95%	1367.05	90%	588.6	2446
Tue	Tuesday, June 22, 2004	PM	20	10	85					
Thu	Thursday, June 24, 2004	AM	20	5	20	95%	1367.05	80%	523.2	2217
Fri	Friday, June 25, 2004	PM	20	45	2					
Sat	Saturday, July 10, 2004	PM	20	4	2					
Mon	Monday, July 19, 2004	AM	20	2	5	98%	1410.22	95%	621.3	2522
Thu	Thursday, July 22, 2004	PM	20	7	10					
Fri	Friday, July 30, 2004	PM	20	10	5					
Thu	Thursday, August 26, 2004	PM	20	25	3					
Fri	Friday, August 27, 2004	PM	20	5	10					
Fri	Friday, September 24, 2004	AM	20	5	10	95%	1367.05	90%	588.6	2348
Fri	Friday, September 24, 2004	PM	20	30	3					
Mon	Monday, October 04, 2004	AM	20	3	5					
Tue	Tuesday, October 05, 2004	PM	20	10	100	97%	1395.83	0%	0	1919
Wed	Wednesday, October 06, 2004	AM	20	10	10	90%	1295.1	90%	588.6	2276
Mon	Monday, October 18, 2004	AM	20	7	10	93%	1338.27	90%	588.6	2319
Sat	Saturday, October 30, 2004	AM	20	7	5					
Mon	Monday, November 01, 2004	AM	20	7	8	93%	1338.27	92%	601.68	2234
Thu	Thursday, November 11, 2004	PM	20	45	5					
Wed	Wednesday, December 01, 2004	AM	20	5	12	95%	1367.05	88%	575.52	2204
Thu	Thursday, December 02, 2004	AM	20	10	10	90%	1295.1	90%	588.6	1916
Wed	Wednesday, December 31, 2003	AM	18	10	5	90%	1295.1	95%	621.3	2407
Tue	Tuesday, November 18, 2003	PM	15	98	50					
Mon	Monday, November 24, 2003	AM	15	2	20	98%	1410.22	80%	523.2	2424
Wed	Wednesday, December 03, 2003	AM	15	10	20	90%	1295.1	80%	523.2	2113
Sun	Sunday, December 07, 2003	PM	15	60	50					
Tue	Tuesday, January 13, 2004	AM	15	4	10	96%	1381.44	90%	588.6	2461
Thu	Thursday, January 22, 2004	AM	15	20	15	80%	1151.2	85%	555.9	2296
Mon	Monday, January 26, 2004	PM	15	70	20					
Wed	Wednesday, February 04, 2004	AM	15	5	7	95%	1367.05	93%	608.22	2466
Mon	Monday, February 09, 2004	AM	15	2	10	98%	1410.22	90%	588.6	2359
Fri	Friday, February 13, 2004	AM	15	10	25	90%	1295.1	75%	490.5	2309
Fri	Friday, February 13, 2004	PM	15	65	5					

			Percent Full			Weekday Available Spaces in Other Seattle Center Parking Facilities				
							total spaces		total spaces	
Day	**Date**	**Shift**	**Fifth Ave % Full**	**MSG % Full**	**1st N % Full**	MSG	1439	1st Ave N	654	**Total Spaces Available**
Fri	Friday, February 20, 2004	PM	15	5	10					
Tue	Tuesday, March 02, 2004	AM	15	15	80	85%	1223.15	20%	130.8	1485
Wed	Wednesday, March 10, 2004	PM	15	40	5					
Thu	Thursday, March 11, 2004	AM	15	10	10	90%	1295.1	90%	588.6	2211
Sat	Saturday, March 20, 2004	PM	15	35	1					
Mon	Monday, March 29, 2004	AM	15	20	20	80%	1151.2	80%	523.2	2263
Mon	Monday, April 12, 2004	AM	15	5	10	95%	1367.05	90%	588.6	2283
Thu	Thursday, April 22, 2004	PM	15	65	20					
Fri	Friday, April 30, 2004	PM	15	10	5					
Thu	Thursday, May 06, 2004	AM	15	10	10	90%	1295.1	90%	588.6	2145
Fri	Friday, May 07, 2004	AM	15	10	15	90%	1295.1	85%	555.9	2113
Fri	Friday, May 14, 2004	PM	15	35	5					
Sun	Sunday, June 27, 2004	AM	15	1	1					
Wed	Wednesday, August 18, 2004	PM	15	65	5					
Fri	Friday, August 20, 2004	PM	15	10	5					
Thu	Thursday, September 09, 2004	AM	15	10	5	90%	1295.1	95%	621.3	2145
Sat	Saturday, September 11, 2004	PM	15	3	5					
Fri	Friday, September 17, 2004	AM	15	3	10	97%	1395.83	90%	588.6	2475
Fri	Friday, September 17, 2004	PM	15	10	5					
Mon	Monday, September 20, 2004	AM	15	4	8	96%	1381.44	92%	601.68	2506
Tue	Tuesday, September 21, 2004	AM	15	3	10	97%	1395.83	90%	588.6	2573
Wed	Wednesday, September 22, 2004	AM	15	5	5	95%	1367.05	95%	621.3	2315
Thu	Thursday, September 23, 2004	AM	15	5	5	95%	1367.05	95%	621.3	2315
Mon	Monday, September 27, 2004	AM	15	5	10	95%	1367.05	90%	588.6	2544
Thu	Thursday, September 30, 2004	AM	15	5	10	95%	1367.05	90%	588.6	2544
Thu	Thursday, September 30, 2004	PM	15	20	5					
Tue	Tuesday, October 05, 2004	AM	15	5	5	95%	1367.05	95%	621.3	2381
Fri	Friday, October 15, 2004	PM	15	10	30	90%	1295.1	70%	457.8	2243
Tue	Tuesday, October 19, 2004	AM	15	20	10	80%	1151.2	90%	588.6	2001
Wed	Wednesday, October 20, 2004	AM	15	5	20	95%	1367.05	80%	523.2	2250
Thu	Thursday, October 21, 2004	AM	15	10	10	90%	1295.1	90%	588.6	2145
Fri	Friday, October 22, 2004	AM	15	5	10	95%	1367.05	90%	588.6	2512
Tue	Tuesday, October 26, 2004	AM	15	5	10	95%	1367.05	90%	588.6	2217
Tue	Tuesday, October 26, 2004	PM	15	35	3					
Wed	Wednesday, October 27, 2004	AM	15	5	10	95%	1367.05	90%	588.6	2217
Wed	Wednesday, October 27, 2004	PM	15	50	5					
Thu	Thursday, October 28, 2004	AM	15	15	20	90%	1295.1	80%	523.2	2047
Fri	Friday, October 29, 2004	AM	15	10	5	90%	1295.1	95%	621.3	2178
Tue	Tuesday, November 16, 2004	AM	15	5	10	95%	1367.05	90%	588.6	2315
Thu	Thursday, November 18, 2004	PM	15	40	10					
Wed	Wednesday, November 24, 2004	PM	15	15	35					
Sat	Saturday, March 27, 2004	PM	12	25	10					
Mon	Monday, May 03, 2004	AM	11	5	5	95%	1367.05	95%	621.3	2479
Mon	Monday, November 17, 2003	PM	10	15	25					
Mon	Monday, December 08, 2003	AM	10	5	8	95%	1367.05	92%	601.68	2590
Wed	Wednesday, December 10, 2003	AM	10	5	5	95%	1367.05	95%	621.3	2217
Sun	Sunday, December 14, 2003	PM	10	50	5					

			Percent Full			Weekday Available Spaces in Other Seattle Center Parking Facilities				
							total spaces		total spaces	Total Spaces
Day	**Date**	**Shift**	**Fifth Ave % Full**	**MSG % Full**	**1st N % Full**	MSG	1439	1st Ave N	654	**Available**
Tue	Tuesday, December 16, 2003	AM	10	5	5	95%	1367.05	95%	621.3	2512
Wed	Wednesday, December 17, 2003	AM	10	2	3	98%	1410.22	97%	634.38	2535
Fri	Friday, January 09, 2004	AM	10	5	10	95%	1367.05	90%	588.6	2479
Sun	Sunday, January 18, 2004	PM	10	5	7					
Wed	Wednesday, January 21, 2004	AM	10	80	10	20%	287.8	90%	588.6	1498
Tue	Tuesday, January 27, 2004	AM	10	10	5	90%	1295.1	95%	621.3	2309
Sat	Saturday, February 07, 2004	PM	10	40	5					
Wed	Wednesday, February 25, 2004	AM	10	5	20	95%	1367.05	80%	523.2	2348
Thu	Thursday, February 26, 2004	AM	10	10	20	90%	1295.1	80%	523.2	2276
Wed	Wednesday, March 17, 2004	PM	10	20	5					
Tue	Tuesday, March 30, 2004	AM	10	100	10	0%	0	90%	588.6	916
Thu	Thursday, April 01, 2004	PM	10	35	10					
Sun	Sunday, April 11, 2004	AM	10	1	2					
Sat	Saturday, April 17, 2004	PM	10	75	2					
Wed	Wednesday, April 21, 2004	PM	10	20	10					
Thu	Thursday, May 13, 2004	AM	10	5	10	95%	1367.05	90%	588.6	2479
Tue	Tuesday, May 18, 2004	PM	10	25	5					
Wed	Wednesday, May 19, 2004	PM	10	40	5					
Thu	Thursday, May 20, 2004	PM	10	5	65					
Fri	Friday, May 21, 2004	PM	10	30	25					
Tue	Tuesday, May 25, 2004	AM	10	8	15	92%	1323.88	85%	555.9	2207
Thu	Thursday, June 03, 2004	AM	10	5	10	95%	1367.05	90%	588.6	2446
Fri	Friday, June 04, 2004	AM	10	5	10	95%	1367.05	90%	588.6	2446
Mon	Monday, June 07, 2004	AM	10	5	5	95%	1367.05	95%	621.3	2446
Tue	Tuesday, June 08, 2004	PM	10	5	5					
Mon	Monday, June 14, 2004	PM	10	20	5					
Mon	Monday, July 12, 2004	PM	10	4	80					
Fri	Friday, September 10, 2004	PM	10	4	5					
Wed	Wednesday, September 15, 2004	PM	10	15	90					
Thu	Thursday, September 16, 2004	AM	10	4	10	96%	1381.44	90%	588.6	2493
Thu	Thursday, September 23, 2004	PM	10	15	2					
Wed	Wednesday, September 29, 2004	AM	10	5	8	95%	1367.05	92%	601.68	2557
Fri	Friday, October 01, 2004	AM	10	5	5	95%	1367.05	95%	621.3	2544
Mon	Monday, October 04, 2004	PM	10	10	5					
Fri	Friday, October 08, 2004	PM	10	5	5					
Mon	Monday, October 11, 2004	AM	10	5	10	95%	1367.05	90%	588.6	2557
Wed	Wednesday, October 13, 2004	AM	10	5	5	95%	1367.05	95%	621.3	2577
Wed	Wednesday, October 13, 2004	PM	10	40	5					
Thu	Thursday, October 14, 2004	PM	10	20	5					
Fri	Friday, October 15, 2004	AM	10	5	10	95%	1367.05	90%	588.6	2512
Wed	Wednesday, October 20, 2004	PM	10	45	5					
Mon	Monday, October 25, 2004	AM	10	5	5	95%	1367.05	95%	621.3	2544
Wed	Wednesday, November 03, 2004	AM	10	10	10	90%	1295.1	90%	588.6	2440
Thu	Thursday, November 04, 2004	PM	10	10	8					
Tue	Tuesday, November 09, 2004	PM	10	25	5					
Mon	Monday, November 15, 2004	AM	10	5	10	95%	1367.05	90%	588.6	2544
Mon	Monday, November 22, 2004	AM	10	5	5	95%	1367.05	95%	621.3	2577
Wed	Wednesday, November 24, 2004	AM	10	8	10	92%	1323.88	90%	588.6	2043

			Percent Full			Weekday Available Spaces in Other Seattle Center Parking Facilities				
							total		total	
Day	**Date**	**Shift**	**Fifth Ave % Full**	**MSG % Full**	**1st N % Full**	MSG	spaces 1439	1st Ave N	spaces 654	**Total Spaces Available**
Wed	Wednesday, January 14, 2004	AM	9	5	7	95%	1367.05	93%	608.22	2270
Tue	Tuesday, February 24, 2004	AM	9	7	15	93%	1338.27	85%	555.9	2385
Mon	Monday, January 12, 2004	AM	8	5	7	95%	1367.05	93%	608.22	2531
Wed	Wednesday, March 10, 2004	AM	8	5	15	95%	1367.05	85%	555.9	2283
Tue	Tuesday, March 02, 2004	PM	6	4	3					
Thu	Thursday, November 20, 2003	AM	5	5	5	95%	1367.05	95%	621.3	2446
Tue	Tuesday, December 09, 2003	AM	5	5	5	95%	1367.05	95%	621.3	2577
Thu	Thursday, December 11, 2003	AM	5	15	5	85%	1223.15	95%	621.3	2073
Thu	Thursday, December 18, 2003	AM	5	5	5	95%	1367.05	95%	621.3	2512
Wed	Wednesday, January 14, 2004	PM	5	80	5					
Wed	Wednesday, January 21, 2004	AM	5	3	4	97%	1395.83	96%	627.84	2638
Sun	Sunday, February 01, 2004	PM	5	25	25					
Tue	Tuesday, February 24, 2004	PM	5	5	10					
Fri	Friday, March 12, 2004	AM	5	5	5	95%	1367.05	95%	621.3	2603
Mon	Monday, April 05, 2004	PM	5	60	2					
Tue	Tuesday, April 20, 2004	PM	5	5	5					
Wed	Wednesday, May 05, 2004	AM	5	10	10	90%	1295.1	90%	588.6	2407
Tue	Tuesday, May 25, 2004	PM	5	10	5					
Mon	Monday, August 09, 2004	PM	5	40	1					
Thu	Thursday, October 14, 2004	AM	5	5	5	95%	1367.05	95%	621.3	2577
Tue	Tuesday, November 02, 2004	AM	5	5	5	95%	1367.05	95%	621.3	2603
Sat	Saturday, January 03, 2004	PM	3	5	3					
Mon	Monday, March 01, 2004	PM	2	2	15					
Sun	Sunday, December 07, 2003	AM	1	1	1					
Sat	Saturday, January 03, 2004	AM	1	1	1					
Sun	Sunday, February 01, 2004	AM	1	1	1					
Sun	Sunday, February 22, 2004	AM	1	1	1					
Mon	Monday, February 23, 2004	AM	1	1	1	99%	1424.61	99%	647.46	2720
Fri	Friday, April 23, 2004	AM	1	1	2	99%	1424.61	98%	640.92	2196
Thu	Thursday, November 20, 2003	PM	0.5	0.5	0.25					

average available	1263.722	average available	529.6492	**2114**
average used	175.2782	average used	124.3508	

Appendix C – Visitor Learning Center and Retail

Trip Generation
LOS Worksheets
Parking Demand

C-1
Retail Trip Generation

Trip Generation Worksheet - Gates Foundation Retail

Proposed Uses Person Trips

Land Use	Size	Trip Rate	Inbound %	ITE Veh Trips	Person Trips
Specialty Retail (LU 814)	**10,000 sfgfa**				AVO = 1.2
Daily		40.670 trips/1,000 sq. ft.	50%	405	485
AM Peak Hour		3.370 trips/1,000 sq. ft.*	48%	35	40
PM Peak Hour		2.590 trips/1,000 sq. ft.	43%	25	30

* *Estimated AM Peak Rate by ratio of PM Generator to PM Adj Street traffic, applied to AM Generator*

Gates Foundation Retail

Net New Person Trips by Mode of Trave

Trip Generation Sumary	Percent of Peak Hour	Percent of Daily	Daily Person Trips	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Retail									
Non-Motorized	65%	65%	315	10	15	25	10	10	20
Transit Trips	5%	5%	25	0	0	0	0	0	0
Person Trips by Vehicle	30%	30%	145	10	5	15	5	5	10
Total	100%	100%	485	20	20	40	15	15	30
Total Project Person Trips									
Non-Motorized			315	10	15	25	10	10	20
Transit Trips			25	0	0	0	0	0	0
Person Trips by Vehicle			145	10	5	15	5	5	10
Total			485	20	20	40	15	15	30

Trip Generation rates were obtained from Trip Generation *(ITE, 6th Edition, 1997)*

Net New Vehicle Trip Generation

Land Use	AVO [1]		Daily Vehicle Trips	AM Peak Hour Vehicle Trips			PM Peak Hour Vehicle Trips		
				In	Out	Total	In	Out	Total
Retail	1.20		120	10	5	15	5	5	10
Total			120	10	5	15	5	5	10

Gates Foundation Retail

Total Person Trips by Mode of Trave

Trip Generation Sumary	Percent of Peak Hour	Percent of Daily	Daily Person Trips	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Retail									
Non-Motorized	65%	65%	315	10	15	25	10	10	20
Transit Trips	5%	5%	25	0	0	0	0	0	0
Person Trips by Vehicle	30%	30%	145	10	5	15	5	5	10
Total	100%	100%	485	20	20	40	15	15	30
Total Project Person Trips									
Non-Motorized			315	10	15	25	10	10	20
Transit Trips			25	0	0	0	0	0	0
Person Trips by Vehicle			145	10	5	15	5	5	10
Total			485	20	20	40	15	15	30

Trip Generation rates were obtained from Trip Generation *(ITE, 6th Edition, 1997)*

Total Vehicle Trip Generation

Land Use	AVO [1]		Daily Vehicle Trips	AM Peak Hour Vehicle Trips			PM Peak Hour Vehicle Trips		
				In	Out	Total	In	Out	Total
Retail	1.20		120	10	5	15	5	5	10
Total			120	10	5	15	5	5	10

C-2
LOS Worksheets

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	11	12	12	12	12	11	11	11	11	12
Total Lost time (s)		3.0	3.0					3.0	3.0	3.0	3.0	
Lane Util. Factor		0.86	1.00					0.91	0.91	0.91	0.91	
Frpb, ped/bikes		1.00	0.92					1.00	0.95	1.00	1.00	
Flpb, ped/bikes		1.00	1.00					1.00	1.00	1.00	1.00	
Frt		1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected		1.00	1.00					1.00	1.00	0.95	0.99	
Satd. Flow (prot)		5874	1421					3190	1335	1527	2843	
Flt Permitted		1.00	1.00					1.00	1.00	0.12	0.70	
Satd. Flow (perm)		5874	1421					3190	1335	201	2004	
Volume (vph)	60	1232	166	0	0	0	0	998	400	116	152	0
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	64	1311	177	0	0	0	0	1062	426	123	162	0
RTOR Reduction (vph)	0	0	60	0	0	0	0	0	172	0	0	0
Lane Group Flow (vph)	0	1375	117	0	0	0	0	1062	254	62	223	0
Confl. Peds. (#/hr)	30		35	35		30	95		25	25		95
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	1%	1%	1%	4%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	18	0	0	18	0
Parking (#/hr)	25	25									8	
Turn Type	Perm		Perm						Perm	pm+pt		
Protected Phases		2						8		7	4	
Permitted Phases	2		2						8	4		
Actuated Green, G (s)		22.0	22.0					26.0	26.0	46.0	46.0	
Effective Green, g (s)		25.0	25.0					29.0	29.0	49.0	49.0	
Actuated g/C Ratio		0.31	0.31					0.36	0.36	0.61	0.61	
Clearance Time (s)		6.0	6.0					6.0	6.0	6.0	6.0	
Lane Grp Cap (vph)		1836	444					1156	484	405	1406	
v/s Ratio Prot								c0.33		0.03	c0.03	
v/s Ratio Perm		0.23	0.08						0.19	0.06	0.06	
v/c Ratio		0.75	0.26					0.92	0.52	0.15	0.16	
Uniform Delay, d1		24.7	20.6					24.4	20.1	19.1	6.7	
Progression Factor		0.74	0.47					1.08	1.14	2.56	2.80	
Incremental Delay, d2		2.1	1.0					12.1	3.7	0.7	0.2	
Delay (s)		20.2	10.7					38.3	26.5	49.6	18.8	
Level of Service		C	B					D	C	D	B	
Approach Delay (s)		19.1			0.0			34.9			25.5	
Approach LOS		B			A			C			C	

Intersection Summary				
HCM Average Control Delay	26.8	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.65			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	75.0%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	11	11	11	11	12	11	11	12
Total Lost time (s)					3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor					0.95	0.95	1.00	0.91		1.00	0.95	
Frpb, ped/bikes					1.00	0.98	1.00	1.00		1.00	0.99	
Flpb, ped/bikes					0.98	1.00	0.86	1.00		1.00	1.00	
Frt					1.00	0.85	1.00	1.00		1.00	1.00	
Flt Protected					0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)					1624	1448	1471	4889		1672	3314	
Flt Permitted					0.95	1.00	0.54	1.00		0.14	1.00	
Satd. Flow (perm)					1624	1448	834	4889		253	3314	
Volume (vph)	0	0	0	240	5	114	20	1296	36	13	315	10
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	258	5	123	22	1394	39	14	339	11
RTOR Reduction (vph)	0	0	0	0	0	16	0	3	0	0	2	0
Lane Group Flow (vph)	0	0	0	0	263	107	22	1430	0	14	348	0
Confl. Peds. (#/hr)	10		20	20		10	75		20	20		75
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	2%	2%	4%	4%	4%
Parking (#/hr)		8										
Turn Type				Perm		Perm	Perm			Perm		
Protected Phases					2			1			1	
Permitted Phases				2		2	1			1		
Actuated Green, G (s)					20.9	20.9	48.1	48.1		48.1	48.1	
Effective Green, g (s)					22.9	22.9	51.1	51.1		51.1	51.1	
Actuated g/C Ratio					0.29	0.29	0.64	0.64		0.64	0.64	
Clearance Time (s)					5.0	5.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)					3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)					465	414	533	3123		162	2117	
v/s Ratio Prot								c0.29			0.10	
v/s Ratio Perm					0.16	0.07	0.03			0.06		
v/c Ratio					0.57	0.26	0.04	0.46		0.09	0.16	
Uniform Delay, d1					24.3	22.0	5.4	7.4		5.5	5.8	
Progression Factor					1.00	1.00	1.21	1.20		0.59	0.60	
Incremental Delay, d2					1.6	0.3	0.1	0.3		1.0	0.2	
Delay (s)					25.9	22.3	6.6	9.2		4.3	3.7	
Level of Service					C	C	A	A		A	A	
Approach Delay (s)		0.0			24.8			9.1			3.7	
Approach LOS		A			C			A			A	

Intersection Summary				
HCM Average Control Delay	11.0	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.49			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	55.2%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis 2010 With-Project Conditions - PM Peak Hour
12: Harrison St & 5th Ave
500 Fifth Avenue North

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	11	11	11	11	12	12	11	12
Total Lost time (s)	3.0	3.0			3.0	3.0	3.0	3.0			3.0	
Lane Util. Factor	1.00	1.00			1.00	0.88	1.00	0.95			0.95	
Frpb, ped/bikes	1.00	0.84			1.00	1.00	1.00	0.99			0.99	
Flpb, ped/bikes	1.00	1.00			1.00	1.00	0.85	1.00			1.00	
Frt	1.00	0.85			1.00	0.85	1.00	1.00			1.00	
Flt Protected	0.95	1.00			0.97	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	1517	1141			1774	2748	1433	3319			3314	
Flt Permitted	0.24	1.00			0.97	1.00	0.27	1.00			0.95	
Satd. Flow (perm)	376	1141			1774	2748	410	3319			3146	
Volume (vph)	15	0	25	25	10	747	25	590	15	5	530	10
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	16	0	27	27	11	821	27	648	16	5	582	11
RTOR Reduction (vph)	0	21	0	0	0	0	0	2	0	0	1	0
Lane Group Flow (vph)	16	6	0	0	38	821	27	662	0	0	597	0
Confl. Peds. (#/hr)	100		100	100			185		115	115		185
Heavy Vehicles (%)	19%	19%	19%	0%	0%	0%	4%	4%	4%	4%	4%	4%
Turn Type	Perm			Split		Prot	Perm			Perm		
Protected Phases		2		6	6	6		4			8	
Permitted Phases	2						4			8		
Actuated Green, G (s)	16.0	16.0			26.7	26.7	21.3	21.3			21.3	
Effective Green, g (s)	17.0	17.0			29.7	29.7	24.3	24.3			24.3	
Actuated g/C Ratio	0.21	0.21			0.37	0.37	0.30	0.30			0.30	
Clearance Time (s)	4.0	4.0			6.0	6.0	6.0	6.0			6.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)	80	242			659	1020	125	1008			956	
v/s Ratio Prot		0.01			0.02	c0.30		c0.20				
v/s Ratio Perm	c0.04						0.07				0.19	
v/c Ratio	0.20	0.02			0.06	0.80	0.22	0.66			0.62	
Uniform Delay, d1	25.9	24.9			16.2	22.6	20.8	24.2			23.9	
Progression Factor	1.00	1.00			1.00	1.00	1.47	1.38			1.08	
Incremental Delay, d2	1.2	0.0			0.0	4.7	3.5	3.0			2.9	
Delay (s)	27.1	25.0			16.2	27.3	34.0	36.3			28.7	
Level of Service	C	C			B	C	C	D			C	
Approach Delay (s)		25.8			26.8			36.3			28.7	
Approach LOS		C			C			D			C	

Intersection Summary				
HCM Average Control Delay	30.3	HCM Level of Service		C
HCM Volume to Capacity ratio	0.61			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)		9.0
Intersection Capacity Utilization	66.2%	ICU Level of Service		C
Analysis Period (min)	15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis 2010 With-Project Conditions - PM Peak Hour
13: Harrison St & Broad St
500 Fifth Avenue North

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	5	0	0	0	0	695	15	0	945	726
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	0	5	0	0	0	0	716	15	0	974	748
Pedestrians		20										
Lane Width (ft)		11.0										
Walking Speed (ft/s)		4.0										
Percent Blockage		2										
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1727	2100	881	1211	2467	366	1743			732		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1727	2100	881	1211	2467	366	1743			732		
tC, single (s)	7.5	6.5	6.9	7.6	6.6	7.0	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.0	3.4	2.2			2.2		
p0 queue free %	100	100	98	100	100	100	100			100		
cM capacity (veh/h)	57	52	289	131	28	622	356			875		

Direction, Lane #	EB 1	NE 1	NE 2	SW 1	SW 2
Volume Total	5	478	254	649	1073
Volume Left	0	0	0	0	0
Volume Right	5	0	15	0	748
cSH	289	1700	1700	1700	1700
Volume to Capacity	0.02	0.28	0.15	0.38	0.63
Queue Length 95th (ft)	1	0	0	0	0
Control Delay (s)	17.7	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	17.7	0.0		0.0	
Approach LOS	C				

Intersection Summary					
Average Delay	0.0				
Intersection Capacity Utilization	60.2%	ICU Level of Service			B
Analysis Period (min)	15				

HCM Signalized Intersection Capacity Analysis 2010 With-Project Conditions - PM Peak Hour
14: 5th Ave & Broad St
500 Fifth Avenue North

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	11	11	11	11	12	11	11	12
Total Lost time (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor		0.95			0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.85	1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.98			1.00	0.85	1.00	1.00		1.00	1.00	
Flt Protected		1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3225			3331	1318	1694	3388		1646	3257	
Flt Permitted		1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		3225			3331	1318	1694	3388		1646	3257	
Volume (vph)	0	420	50	0	452	118	185	560	0	125	660	20
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	452	54	0	486	127	199	602	0	134	710	22
RTOR Reduction (vph)	0	11	0	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	495	0	0	486	127	199	602	0	134	729	0
Confl. Peds. (#/hr)	115		85	85		115	130		45	45		130
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	3%	3%	3%	6%	6%	6%
Bus Blockages (#/hr)	0	20	0	0	18	0	0	0	0	0	0	0
Turn Type						Perm	Prot			Prot		
Protected Phases		8			4		5	2		1	6	
Permitted Phases						4						
Actuated Green, G (s)		21.0			21.0	21.0	14.0	24.0		14.0	24.0	
Effective Green, g (s)		27.0			27.0	27.0	17.0	27.0		17.0	27.0	
Actuated g/C Ratio		0.34			0.34	0.34	0.21	0.34		0.21	0.34	
Clearance Time (s)		9.0			9.0	9.0	6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		1088			1124	445	360	1143		350	1099	
v/s Ratio Prot		c0.15			0.15		c0.12	0.18		0.08	c0.22	
v/s Ratio Perm						0.10						
v/c Ratio		0.45			0.43	0.29	0.55	0.53		0.38	0.66	
Uniform Delay, d1		20.7			20.6	19.4	28.1	21.4		27.0	22.6	
Progression Factor		0.91			0.10	0.09	1.23	0.83		1.00	1.00	
Incremental Delay, d2		1.4			1.0	1.3	5.5	1.6		3.2	3.2	
Delay (s)		20.3			3.0	3.1	40.0	19.3		30.2	25.8	
Level of Service		C			A	A	D	B		C	C	
Approach Delay (s)		20.3			3.1			24.4			26.5	
Approach LOS		C			A			C			C	

Intersection Summary				
HCM Average Control Delay	19.6	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.56			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	56.0%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis 2010 With-Project Conditions - PM Peak Hour
25: Harrison St & Site Access
500 Fifth Avenue North

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	20	753	26	0	29
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	22	818	28	0	32
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)		173				
pX, platoon unblocked						
vC, conflicting volume	847				854	287
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	847				854	287
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	96
cM capacity (veh/h)	786				298	710

Direction, Lane #	EB 1	WB 1	WB 2	WB 3	SB 1
Volume Total	22	327	327	192	32
Volume Left	0	0	0	0	0
Volume Right	0	0	0	28	32
cSH	1700	1700	1700	1700	710
Volume to Capacity	0.01	0.19	0.19	0.11	0.04
Queue Length 95th (ft)	0	0	0	0	3
Control Delay (s)	0.0	0.0	0.0	0.0	10.3
Lane LOS					B
Approach Delay (s)	0.0	0.0			10.3
Approach LOS					B

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	25.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	1740	5	0	0	0	222
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1933	6	0	0	0	247
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)	646			646		
pX, platoon unblocked						
vC, conflicting volume			1939		1936	486
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1939		1936	486
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	53
cM capacity (veh/h)			299		58	527

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	NB 1
Volume Total	552	552	552	282	247
Volume Left	0	0	0	0	0
Volume Right	0	0	0	6	247
cSH	1700	1700	1700	1700	527
Volume to Capacity	0.32	0.32	0.32	0.17	0.47
Queue Length 95th (ft)	0	0	0	0	62
Control Delay (s)	0.0	0.0	0.0	0.0	17.7
Lane LOS					C
Approach Delay (s)	0.0				17.7
Approach LOS					C

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	45.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	11	12	12	12	12	11	11	11	11	12
Total Lost time (s)		3.0	3.0					3.0	3.0	3.0	3.0	
Lane Util. Factor		0.86	1.00					0.91	0.91	0.91	0.91	
Frpb, ped/bikes		1.00	0.92					1.00	0.95	1.00	1.00	
Flpb, ped/bikes		1.00	1.00					1.00	1.00	1.00	1.00	
Frt		1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected		1.00	1.00					1.00	1.00	0.95	0.99	
Satd. Flow (prot)		5874	1421					3190	1335	1527	2843	
Flt Permitted		1.00	1.00					1.00	1.00	0.12	0.70	
Satd. Flow (perm)		5874	1421					3190	1335	201	2003	
Volume (vph)	60	1232	167	0	0	0	0	1000	407	116	153	0
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	64	1311	178	0	0	0	0	1064	433	123	163	0
RTOR Reduction (vph)	0	0	60	0	0	0	0	0	172	0	0	0
Lane Group Flow (vph)	0	1375	118	0	0	0	0	1064	261	62	224	0
Confl. Peds. (#/hr)	30		35	35		30	95		25	25		95
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	1%	1%	1%	4%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	18	0	0	18	0
Parking (#/hr)	25	25									8	
Turn Type	Perm		Perm						Perm	pm+pt		
Protected Phases		2						8		7	4	
Permitted Phases	2		2						8	4		
Actuated Green, G (s)		22.0	22.0					26.0	26.0	46.0	46.0	
Effective Green, g (s)		25.0	25.0					29.0	29.0	49.0	49.0	
Actuated g/C Ratio		0.31	0.31					0.36	0.36	0.61	0.61	
Clearance Time (s)		6.0	6.0					6.0	6.0	6.0	6.0	
Lane Grp Cap (vph)		1836	444					1156	484	405	1405	
v/s Ratio Prot								c0.33		0.03	c0.03	
v/s Ratio Perm		0.23	0.08						0.20	0.06	0.06	
v/c Ratio		0.75	0.27					0.92	0.54	0.15	0.16	
Uniform Delay, d1		24.7	20.6					24.4	20.2	19.2	6.7	
Progression Factor		0.74	0.47					1.07	1.12	2.54	2.79	
Incremental Delay, d2		2.1	1.1					12.2	3.9	0.7	0.2	
Delay (s)		20.2	10.7					38.3	26.5	49.5	18.8	
Level of Service		C	B					D	C	D	B	
Approach Delay (s)		19.1			0.0			34.9			25.4	
Approach LOS		B			A			C			C	

Intersection Summary				
HCM Average Control Delay	26.8	HCM Level of Service		C
HCM Volume to Capacity ratio	0.65			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)		6.0
Intersection Capacity Utilization	75.2%	ICU Level of Service		D
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	11	11	11	11	12	11	11	12
Total Lost time (s)					3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor					0.95	0.95	1.00	0.91		1.00	0.95	
Frpb, ped/bikes					1.00	0.98	1.00	1.00		1.00	0.99	
Flpb, ped/bikes					0.98	1.00	0.86	1.00		1.00	1.00	
Frt					1.00	0.85	1.00	1.00		1.00	1.00	
Flt Protected					0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)					1624	1448	1471	4886		1672	3314	
Flt Permitted					0.95	1.00	0.54	1.00		0.14	1.00	
Satd. Flow (perm)					1624	1448	834	4886		251	3314	
Volume (vph)	0	0	0	246	5	122	20	1297	41	15	315	10
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	265	5	131	22	1395	44	16	339	11
RTOR Reduction (vph)	0	0	0	0	0	16	0	3	0	0	2	0
Lane Group Flow (vph)	0	0	0	0	270	115	22	1436	0	16	348	0
Confl. Peds. (#/hr)	10		20	20		10	75		20	20		75
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	2%	2%	4%	4%	4%
Parking (#/hr)		8										
Turn Type				Perm		Perm	Perm			Perm		
Protected Phases					2						1	
Permitted Phases				2		2	1			1		
Actuated Green, G (s)					21.0	21.0	48.0	48.0		48.0	48.0	
Effective Green, g (s)					23.0	23.0	51.0	51.0		51.0	51.0	
Actuated g/C Ratio					0.29	0.29	0.64	0.64		0.64	0.64	
Clearance Time (s)					5.0	5.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)					3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)					467	416	532	3115		160	2113	
v/s Ratio Prot								c0.29			0.10	
v/s Ratio Perm					0.17	0.08	0.03			0.06		
v/c Ratio					0.58	0.28	0.04	0.46		0.10	0.16	
Uniform Delay, d1					24.4	22.1	5.4	7.4		5.6	5.9	
Progression Factor					1.00	1.00	1.22	1.20		0.60	0.61	
Incremental Delay, d2					1.7	0.4	0.1	0.3		1.2	0.2	
Delay (s)					26.1	22.4	6.7	9.3		4.6	3.7	
Level of Service					C	C	A	A		A	A	
Approach Delay (s)		0.0			24.9			9.2			3.8	
Approach LOS		A			C			A			A	

Intersection Summary				
HCM Average Control Delay	11.1	HCM Level of Service		B
HCM Volume to Capacity ratio	0.50			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)		6.0
Intersection Capacity Utilization	55.9%	ICU Level of Service		B
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	11	11	11	11	12	12	11	12
Total Lost time (s)	3.0	3.0			3.0	3.0	3.0	3.0			3.0	
Lane Util. Factor	1.00	1.00			1.00	0.88	1.00	0.95			0.95	
Frpb, ped/bikes	1.00	0.84			1.00	1.00	1.00	0.99			0.99	
Flpb, ped/bikes	1.00	1.00			1.00	1.00	0.86	1.00			1.00	
Frt	1.00	0.85			1.00	0.85	1.00	1.00			1.00	
Flt Protected	0.95	1.00			0.97	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	1517	1141			1774	2748	1437	3319			3314	
Flt Permitted	0.24	1.00			0.97	1.00	0.27	1.00			0.95	
Satd. Flow (perm)	376	1141			1774	2748	404	3319			3147	
Volume (vph)	15	0	25	25	10	749	25	594	15	5	536	10
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	16	0	27	27	11	823	27	653	16	5	589	11
RTOR Reduction (vph)	0	21	0	0	0	0	0	2	0	0	1	0
Lane Group Flow (vph)	16	6	0	0	38	823	27	667	0	0	604	0
Confl. Peds. (#/hr)	100		100	100			185		115	115		185
Heavy Vehicles (%)	19%	19%	19%	0%	0%	0%	4%	4%	4%	4%	4%	4%
Turn Type	Perm			Split		Prot	Perm			Perm		
Protected Phases		2		6	6	6		4			8	
Permitted Phases	2						4			8		
Actuated Green, G (s)	16.0	16.0			26.7	26.7	21.3	21.3			21.3	
Effective Green, g (s)	17.0	17.0			29.7	29.7	24.3	24.3			24.3	
Actuated g/C Ratio	0.21	0.21			0.37	0.37	0.30	0.30			0.30	
Clearance Time (s)	4.0	4.0			6.0	6.0	6.0	6.0			6.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)	80	242			659	1020	123	1008			956	
v/s Ratio Prot		0.01			0.02	c0.30		c0.20				
v/s Ratio Perm	c0.04						0.07				0.19	
v/c Ratio	0.20	0.02			0.06	0.81	0.22	0.66			0.63	
Uniform Delay, d1	25.9	24.9			16.2	22.6	20.8	24.3			24.0	
Progression Factor	1.00	1.00			1.00	1.00	1.47	1.38			1.09	
Incremental Delay, d2	1.2	0.0			0.0	4.8	3.6	3.0			3.0	
Delay (s)	27.1	25.0			16.2	27.3	34.2	36.5			29.1	
Level of Service	C	C			B	C	C	D			C	
Approach Delay (s)		25.8			26.8			36.4			29.1	
Approach LOS		C			C			D			C	

Intersection Summary				
HCM Average Control Delay	30.5	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.61			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	66.4%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	5	0	0	0	0	695	15	0	945	729
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	0	5	0	0	0	0	716	15	0	974	752
Pedestrians		20										
Lane Width (ft)		11.0										
Walking Speed (ft/s)		4.0										
Percent Blockage		2										
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1728	2102	883	1211	2470	366	1746			732		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1728	2102	883	1211	2470	366	1746			732		
tC, single (s)	7.5	6.5	6.9	7.6	6.6	7.0	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.0	3.4	2.2			2.2		
p0 queue free %	100	100	98	100	100	100	100			100		
cM capacity (veh/h)	56	52	288	131	28	622	355			875		

Direction, Lane #	EB 1	NE 1	NE 2	SW 1	SW 2
Volume Total	5	478	254	649	1076
Volume Left	0	0	0	0	0
Volume Right	5	0	15	0	752
cSH	288	1700	1700	1700	1700
Volume to Capacity	0.02	0.28	0.15	0.38	0.63
Queue Length 95th (ft)	1	0	0	0	0
Control Delay (s)	17.7	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	17.7	0.0		0.0	
Approach LOS	C				

Intersection Summary					
Average Delay	0.0				
Intersection Capacity Utilization	60.3%	ICU Level of Service	B		
Analysis Period (min)	15				

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	11	11	11	11	12	11	11	12
Total Lost time (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor		0.95			0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.85	1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.98			1.00	0.85	1.00	1.00		1.00	1.00	
Flt Protected		1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3225			3331	1318	1694	3388		1646	3257	
Flt Permitted		1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		3225			3331	1318	1694	3388		1646	3257	
Volume (vph)	0	423	50	0	456	120	186	560	0	125	660	20
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	455	54	0	490	129	200	602	0	134	710	22
RTOR Reduction (vph)	0	11	0	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	498	0	0	490	129	200	602	0	134	729	0
Confl. Peds. (#/hr)	115		85	85		115	130		45	45		130
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	3%	3%	3%	6%	6%	6%
Bus Blockages (#/hr)	0	20	0	0	18	0	0	0	0	0	0	0
Turn Type						Perm	Prot			Prot		
Protected Phases		8			4		5	2		1	6	
Permitted Phases						4						
Actuated Green, G (s)		21.0			21.0	21.0	14.0	24.0		14.0	24.0	
Effective Green, g (s)		27.0			27.0	27.0	17.0	27.0		17.0	27.0	
Actuated g/C Ratio		0.34			0.34	0.34	0.21	0.34		0.21	0.34	
Clearance Time (s)		9.0			9.0	9.0	6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		1088			1124	445	360	1143		350	1099	
v/s Ratio Prot		c0.15			0.15		c0.12	0.18		0.08	c0.22	
v/s Ratio Perm						0.10						
v/c Ratio		0.46			0.44	0.29	0.56	0.53		0.38	0.66	
Uniform Delay, d1		20.8			20.6	19.5	28.1	21.4		27.0	22.6	
Progression Factor		0.92			0.10	0.09	1.23	0.83		1.00	1.00	
Incremental Delay, d2		1.4			1.0	1.3	5.5	1.6		3.2	3.2	
Delay (s)		20.4			3.0	3.1	40.1	19.3		30.2	25.8	
Level of Service		C			A	A	D	B		C	C	
Approach Delay (s)		20.4			3.0			24.5			26.5	
Approach LOS		C			A			C			C	

Intersection Summary				
HCM Average Control Delay	19.6	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.56			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	56.0%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	20	754	29	0	30
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	22	820	32	0	33
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)		173				
pX, platoon unblocked						
vC, conflicting volume	851				857	289
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	851				857	289
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	95
cM capacity (veh/h)	783				296	708

Direction, Lane #	EB 1	WB 1	WB 2	WB 3	SB 1
Volume Total	22	328	328	195	33
Volume Left	0	0	0	0	0
Volume Right	0	0	0	32	33
cSH	1700	1700	1700	1700	708
Volume to Capacity	0.01	0.19	0.19	0.11	0.05
Queue Length 95th (ft)	0	0	0	0	4
Control Delay (s)	0.0	0.0	0.0	0.0	10.3
Lane LOS					B
Approach Delay (s)	0.0	0.0			10.3
Approach LOS					B

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	25.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	1747	5	0	0	0	222
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1941	6	0	0	0	247
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)	646			646		
pX, platoon unblocked						
vC, conflicting volume			1947		1944	488
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1947		1944	488
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	53
cM capacity (veh/h)			297		57	526

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	NB 1
Volume Total	555	555	555	283	247
Volume Left	0	0	0	0	0
Volume Right	0	0	0	5	247
cSH	1700	1700	1700	1700	526
Volume to Capacity	0.33	0.33	0.33	0.17	0.47
Queue Length 95th (ft)	0	0	0	0	62
Control Delay (s)	0.0	0.0	0.0	0.0	17.8
Lane LOS					C
Approach Delay (s)	0.0				17.8
Approach LOS					C

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		

C-3
Parking Demand

500 Fifth Ave
Parking Demand Calculations
The Transpo Group

PARKING DEMAND CALCULATIONS
With Long-Term TMP

Office Building Area	420,000	
Employee Density - Office	3.29	(employees/1,000 square feet)
EMPLOYEES	**1382**	
Percent Employees On-Site	85%	
EMPLOYEES ON-SITE	**1175**	

MODE SPLIT - Office		**PEOPLE**
Transit	25%	294
Other	5%	59
SOV	50%	588
Carpool	20%	235

PARKING STALL DEMAND		**PARKING STALLS**	
Office =	**420,000**		
Vehicles (AVO = 1.0/2.3)		690	
Short-term office parking (0.10 Stalls/1,000 SF)		42	
Subtotal		732	1.74 stalls/1,000 sf
Retail =	**10,000**		
Customer Parking (0.64 Stalls/1,000 SF)		6	
Employee parking (0.27 Stalls/1,000 SF)		3	
Subtotal		*9*	0.91 stalls/1,000 sf
Demand at Office Peak (87% of Peak)		8	
VLC =	**16,000**		
Customer Parking (based on pro-rated SAM data)		6	
Employee parking (based on pro-rated SAM data)		4	
Subtotal		*10*	0.63 stalls/1,000 sf
Demand at Office Peak (100% of Peak)		10	

TOTAL PARKING DEMAND (STALLS) = 750

Appendix D – Distribution List

Distribution List

Federal Agencies:
Economic Development Administration
Environmental Protection Agency, Region X
Housing and Urban Development, Region X
National Marine Fisheries Service
United Indians of All Tribes

State of Washington:
Governor of the State of Washington
Department of Community Development – State Historic Preservation Officer
Department of Ecology – Environmental Review Section
Department of Health
Department of Natural Resources
Department of Transportation
Washington State Trade and Economic Development

Regional Agencies:
Metro Environmental Planning
Puget Sound Clean Air Agency
Puget Sound Regional Council of Governments

City of Seattle:
City Council
Laurie Geissinger, City Light
Design Commission
Chief, Fire Department
Director, Health Department
Housing Department
Law Department
Director, Department of Neighborhoods
Director, Parks Department
Gordon Clowers, Planning and Development
Chief, Police Department
SEPA Public Information Center (DPD)
Director, Seattle Center
Director, Seattle Department of Transportation
Urania Perez, Senior Environmental Specialist., Seattle Department of Transportation

Libraries:
Seattle Library – Government Publications
Seattle Public Library – Queen Anne Branch

Newspapers:
Seattle Times
Seattle Post Intelligencer
Daily Journal of Commerce

Special Interest Groups & Individuals:
Allied Arts of Seattle
League of Women Voters, Land Use Chair