heffron transportation, inc.

# TECHNICAL MEMORANDUM

Project: Seattle Community Parking Studies - 2009

Subject: On-Street Parking Configuration in Capitol Hill

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The Capitol Hill Neighborhood On-Street Parking Study includes an evaluation of existing on-street parking configurations along several streets where parallel parking is allowed on only one side of the street and there is the potential to convert to parallel parking on two sides or to angle parking. The evaluation and recommendations for this study task are presented in this technical memorandum.

In many neighborhoods, parking is allowed on both sides of streets that are only 25-feet wide. Angle parking on one-side of the street is sometimes used along select streets, most commonly adjacent to large public tracts such as a park or a school.

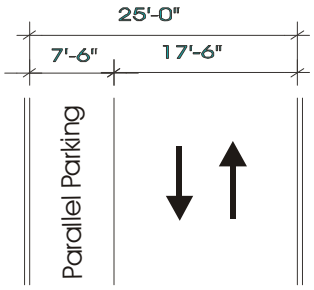
To assist with the analysis, we first developed a list of features that should be considered when determining the most appropriate parking configuration. These "considerations" are described below. The subject streets were then reviewed against these considerations. The results were used to prepare recommendations for the streets listed in the scope of work.

## 1. Potential Parking Configurations on Narrow Streets

The two configurations for parallel parking on a 25-foot street are shown on Figure 1. Two way traffic can be maintained, although with very narrow lanes when parallel parking is provided on only one side. When parallel parking is provided on both sides of a narrow street, traffic is restricted to one direction at a time and motorists approaching from opposite directions must take turns using sections of a street. On streets where parking occupies the entire block face and there are no driveways or other "No Parking" zones, motorists sometimes have to back-up to allow an oncoming vehicle to pass.

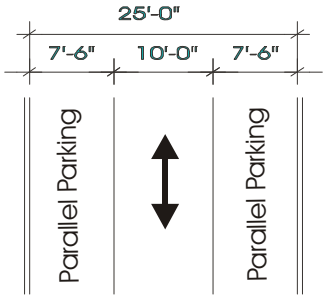
Figure 1. Parking configurations on Narrow Streets

Parallel Parking on One Side of Street



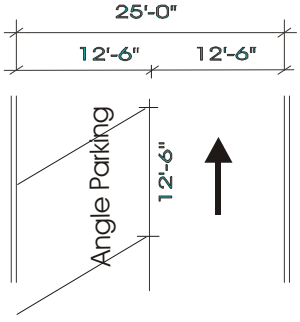

*Olive Street E – Parallel Parking on One side of the Street*

Parallel Parking on Both Sides of Street




Angle parking is also possible along some narrow streets if the street is one-way and if there is adequate space between the curb and the sidewalk to allow for the vehicle overhang. Although most angle parking exists on streets with curb-to-curb widths greater than 28 feet, there is one example in Seattle that has angle parking on a 25-foot wide street—on Woodlawn Avenue N adjacent to Lincoln High School in Wallingford. That street is split in half with 12.5 feet dedicated to 45-degree back-in angle parking and 12.5 feet for the northbound driving lane. The spaces are extra-wide at 12.5 feet each, which provide more maneuvering space from the narrow drive lane. That configuration is shown on Figure 2.

Figure 2. Angle Parking on a Narrow Street




*Angle parking on Woodlawn Avenue N at Lincoln High School.*

## 2. Considerations for Parking Configuration

The choice of parking configuration should account for the adjacent land uses, traffic volume on the street, types of vehicles that use the street, sidewalk width, and landscape treatments. Various considerations are described in Table 1.

Table 1. Considerations for Parking Configuration

| **Parallel Parking on One Side of the Street** | |
|---|---|
| **Use if:**<br>• The street has a high volume of locally-destined traffic (not cut-through traffic) that would need to pass in opposing directions.<br>• The street accommodates higher volumes of large vehicles such as buses or trucks.<br>• There are businesses that require truck access (and turning from street).<br>• There is a high volume of curb-side garbage pick up.<br>• The street has many driveways on the "No Parking" side of the street.<br>• There are very long distances between intersections and limited passing space for opposing vehicles. | **Don't use if:**<br>• On-street parking capacity is a higher priority than through vehicle capacity.<br><br>**Optional if:**<br>• The street has relatively low volume of traffic. |
| **Parallel Parking on Both Sides of the Street** | |
| **Use if:**<br>• The street has a relatively low volume of traffic.<br>• There are short blocks where opposing traffic can wait at the intersection.<br>• Few large vehicles use the street. | **Don't use if:**<br>• The street has a high volume of traffic, and single direction operation would create congestion or the need to frequently back vehicles to avoid opposing traffic.<br>• There is substantial curb-side waste/recycling pickup when trucks could block traffic lane.<br>• There are long blocks where passing areas cannot be provided.<br>• The street is used as a primary emergency access route (e.g., near a hospital or fire station.) |
| **Angle Parking** | |
| **Use if:**<br>• Angle parking increases parking capacity and there are more driveways on one-side of the street.<br>• There is a continuous curbed street segment (e.g., adjacent to a park).<br>• The vehicle overhang at the curb will not reduce the pedestrian walkway effective width to below 6 feet. | **Don't use if:**<br>• Adjacent to narrow sidewalks where vehicle overhang would affect ADA accessibility.<br>• Two-sided parallel parking would provide more capacity (e.g., on streets with many driveways).<br>• Parallel streets or intersections would be adversely affected if angle parking requires one-way operation on the subject street.<br>• Angle parking would create headlight glare for ground-floor residential uses across the street.<br>• Street trees would be damaged by vehicles that overhang curb. |

# 3. Evaluation of Select Capitol Hill Streets

Ten streets in Capitol Hill were reviewed to determine if parking supply could be increased by converting the streets from one-sided parking to two-sided or angle parking. The streets reviewed were:

**East/West**
- E Mercer Street (from Broadway Avenue E to Bellevue Avenue E)
- E Republican Street (from Broadway Avenue E to Bellevue Avenue E)
- E Harrison Street (from Broadway Avenue E to Bellevue Avenue E)
- E Thomas Street (from Broadway Avenue E to Bellevue Avenue E)
- E Howell Street (from Summit Avenue E to Harvard Avenue E)
- E Olive Street (from Bellevue Avenue E to Boylston Avenue E)

**North/South**
- Belmont Avenue E (between E Thomas and Mercer Streets)
- Boylston Avenue E (between E Olive Way and E Mercer Street)

**Angled**
- Summit Avenue E (between E Pine and E Howell Streets)
- Belmont Avenue E (between E Pine and E Howell Streets)

These streets were rated against the considerations described above to arrive at a recommendation. The considerations and recommendations are presented in Table 2 and Table 3 for the two-sided parallel parking and angle parking, respectively.

The block lengths in this neighborhood are longer in the north-south direction (approximately 420 feet) than the east-west direction (approximately 300 feet). There is more traffic activity on the blocks closest to Broadway Avenue E, with local circulation to area business on the streets between Broadway Avenue E and Harvard Avenue E as well as along Harvard Avenue E.

Two primary considerations for angle parking is the width of the driving lanes that could be provided and whether vehicles would overhang a narrow sidewalk and block pedestrian access. There is currently some angle parking on Belmont Avenue E north of E Olive Street that appears to be unsanctioned. These vehicles do overhang the sidewalk as shown in the photo below. As noted in the recommendations, this parking configuration could be allowed if wheel stops could be added about 2 feet from the curb line to prevent the overhang. The effective driving lane on the street (distance between the parallel-parked cars on one side and the front bumper of the angle-parked cars on the other side) is now 20 to 22 feet wide, so a 2-foot reduction in driving lane width would still be sufficient for two-way traffic.

Figure 3. Sidewalk Overhang on Belmont Avenue

Table 2. Evaluation One-Sided Parallel Parking Conversion to Two-Sided Parallel Parking

| Street | Curb-to-curb width (feet) | Does street have a high volume of traffic? [a] | Does the street accommodate high volume of trucks or buses? | Are there businesses that require truck access? | Is there a high volume of curb-side garbage pick up? | Are there many driveways on the "No Parking" side of the street? | Are there long distances between intersections? | Other considerations? | Recommendation |
|---|---|---|---|---|---|---|---|---|---|
| E Mercer Street (Broadway to Bellevue Ave E) | 25 | No | No | No | No | No | No | Business access near Broadway Ave | Allow two-sided parking from Bellevue Ave to Harvard Ave; allow parallel parking on south side of the street between Harvard Ave and Broadway Ave |
| E Republican Street (Broadway to Bellevue Ave E) | 25 | No | No | No | No | No | No | Business access near Broadway Ave | Allow two-sided parking from Bellevue Ave to Harvard Ave; allow parallel parking on south side of the street between Harvard Ave and Broadway Ave. |
| E Harrison Street (Broadway to Bellevue Ave E) | 25 | No | No | On Parts | No | On Parts | No | Angled parking east of Harvard Ave in front of apartment bldg | Allow two-sided parking from Bellevue Ave to Boylston Ave; retain existing configuration from Boylston Ave to Broadway Ave where there are many open apartment driveways and angle parking. |

| Street | Curb-to-curb width (feet) | Does street have a high volume of traffic? [a] | Does the street accommodate high volume of trucks or buses? | Are there businesses that require truck access? | Is there a high volume of curb-side garbage pick up? | Are there many driveways on the "No Parking" side of the street? | Are there long distances between intersections? | Other considerations? | Recommendation |
|---|---|---|---|---|---|---|---|---|---|
| E Thomas Street (Broadway to Bellevue Ave E) | 25 | On Parts | On Parts | On Parts | No | No | No | Curved roadway from Belmont Ave to Boylston Ave | Allow two-sided parking from Bellevue Ave to Belmont Ave and from Boylston Ave to Harvard Ave. Retain existing configuration through curvy section (Belmont Ave to Boylston Ave) and from Harvard Ave to Broadway Ave where volumes are higher for commercial circulation. |
| E Howell Street (Summit Ave E to Harvard Ave E) | 25 | No | No | No | No | No | No | Two-sided parking already on section west of Belmont Ave | Allow two-sided parking from Belmont Ave to Boylston Ave, and from Harvard Ave to Boylston Ave. |
| E Olive Street (Bellevue Ave to Boylston Ave E) | 25 | No | No | No | No | No | No | -- | Allow two-sided parking from Bellevue Ave to Boylston Ave |
| Belmont Avenue E (E Harrison St to E Mercer St) | 25 | No | No | No | Yes | On Part | Yes | -- | Do not change the parking configuration. |
| Belmont Avenue E (E Thomas St to E Harrison St) | 25/39 | No | No | No | Yes | No | Yes | Angle parking for section south of Harrison Street | Do not change the parking configuration. |
| Boylston Avenue E (E Olive Way to E Mercer St) | 25 | No | No | No | Yes | Yes | Yes | -- | Do not change the parking configuration. |

*a. Volume of traffic was qualitatively reviewed.*

Table 3. Evaluation Parallel Parking Conversion to Angle Parking

| Street | Curb-to-curb width (feet) | Is the street wide enough to accommodate angle parking and two-way traffic flow? | If narrow, can the street function as a one-way street? | With driveway locations, would supply increase with angle parking vs. parallel parking? | Would vehicle overhang affect adjacent sidewalk? | Would street trees be damaged by vehicle parking maneuvers? | Would ground-floor residents on the opposite side of the street be affected by headlight glare? | Other considerations? | Recommendation:<br>Should the parking configuration be changed to angle parking? |
|---|---|---|---|---|---|---|---|---|---|
| Belmont Avenue E<br>(E Pine St to E Howell St) | 40 | Yes | -- | Yes | On parts | Some | Some | Angle parking already exists in places, but blocks portions of sidewalk | Allow angle parking on east side of street between E Pine Street and E Olive Way where new development has provided landscape buffer to sidewalk. Either remove existing angle parking that blocks sidewalks, or modify with wheel stops to prevent sidewalk overhang. |
| Summit Avenue E<br>(E Pine St to E Howell St) | 42 | Yes | -- | Yes | Yes | Some | Some | -- | Allow angle parking as site redevelop and provide a wider sidewalk, or consider wheel stops to prevent sidewalk overhang. |

## 4. Recommendation

Based on the evaluation, the following changes to the existing parking configuration are recommended. These are shown on Figure 4.

- **E Mercer Street** - Allow two-sided parking from Bellevue Avenue E to Harvard Avenue E; allow parallel parking on south side of the street between Harvard Avenue E and Broadway Avenue E.

- **E Republican Street** - Allow two-sided parking from Bellevue Avenue E to Harvard Avenue E; allow parallel parking on south side of the street between Harvard Avenue E and Broadway Avenue E.

- **E Harrison Street** - Allow two-sided parking from Bellevue Avenue E to Boylston Avenue E; retain existing configuration from Boylston Avenue E to Broadway Avenue E where there are many open apartment driveways and angle parking.

- **E Thomas Street** - Allow two-sided parking from Bellevue Avenue E to Belmont Avenue E and from Boylston Avenue E to Harvard Avenue E. Retain existing configuration through curvy section (from Belmont Avenue E to Boylston Avenue E) where two sided parking could result in sideswiped vehicles. Retain existing parking configuration from Harvard Avenue E to Broadway Avenue E where volumes are higher for commercial circulation.

- **E Howell Street** - Allow two-sided parking from Belmont Avenue E to Boylston Avenue E, and from Harvard Avenue E to Boylston Avenue E.

- **E Olive Street** - Allow two-sided parking from Bellevue Avenue E to Boylston Avenue E.

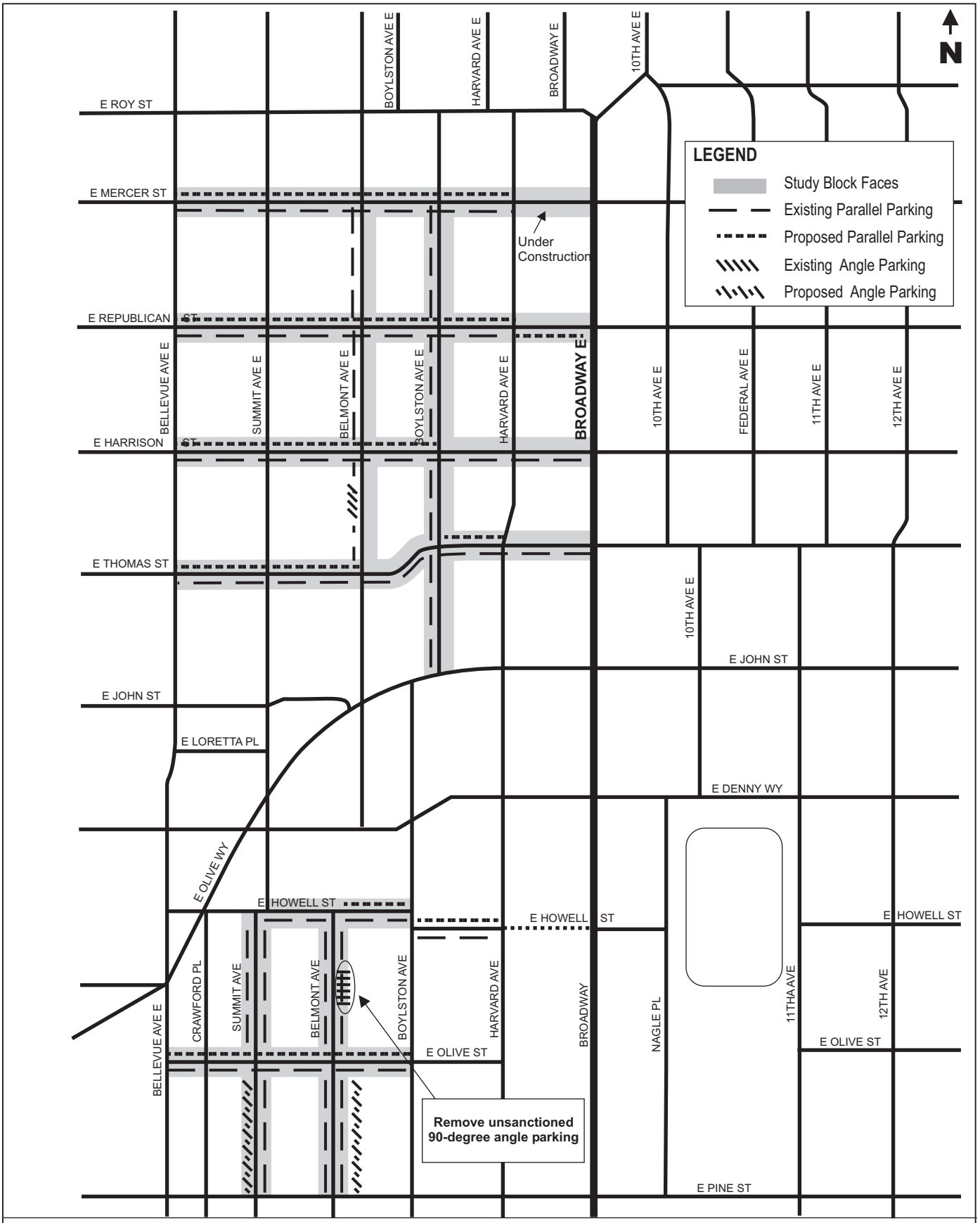
- **Belmont Avenue E** - Do not change the parking configuration from E Thomas Street to E Mercer Street.

- **Boylston Avenue E** - Do not change the parking configuration from E Olive Way to E Mercer Street.

- **Belmont Avenue E** - Allow angle parking on east side of street between E Pine Street and E Olive Way where new development has provided landscape buffer to sidewalk. Remove the informal (unsanctioned) angle parking between E Olive Street and E Howell Street that blocks the adjacent sidewalk, or install wheel stops to prevent sidewalk overhang.

- **Summit Avenue E** - Allow angle parking as sites redevelop and provide a buffer between the curb and the sidewalk. In the interim, consider adding wheel stops to allow angle parking adjacent to narrow sidewalks.

Attachment: Figure 4




CAPITOL HILL NEIGHBORHOOD **PARKING STUDY**

Figure 4
**Study Area Block Faces**
**On-Street Parking Configuration**

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