



6th Street Active Transportation Improvement Project

Staff Concept Design Recommendations Memo

December 2025

6th Street Active Transportation Project Staff Concept Design Recommendations Memo

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Purpose

The 6th Street Active Transportation Project included a concept and alternative design phase in 2024 and 2025 which included a significant amount of technical evaluation, review of updated multimodal design best practices, development of concept designs, and public outreach. This memo provides an overview of staff recommendations for project design alternatives based on a broad range of decision-making factors. The staff recommendations provided in this memo are intended to inform the project scope for subsequent development of final engineering design by the City's project consultant, HDR Engineering.

Decision-Making Approach

The Engineering Division has reviewed this most recent community input in coordination with prior input from the public, other partner agencies (such as Kitsap Transit), and other internal city departments and divisions. Input was evaluated considering previous project studies, adopted city plans, project-specific technical analysis, national design standards or best practices, and project scope or funding constraints. The following factors were considered in the decision-making approach:

1. **Public Input:** Community input or alternative preferences identified through the most recent 2025 online project survey¹ and/or previous project outreach.
2. **Stakeholder Input:** Consistency, where applicable, with input received from specific project stakeholders including other city departments, Kitsap Transit, Waste Management, Naval Base Kitsap – Bremerton, and the Bremerton School District.
3. **Previous Studies and Adopted Plans:** Consistency with previous plans and/or studies such as the Comprehensive Plan², Joint Compatibility Transportation Plan³, 6th Street and 11th Street Corridor Feasibility Study⁴, and Bremerton Strategic Road Safety Plan⁵.
4. **Technical Analysis:** Consistency with project data and/or technical studies performed through the Engineering Division.
5. **Established City Policies:** Adherence to applicable city policies including the Complete Streets Program⁶ (BMC 11.10) and Transportation Development Code⁷ (BMC 11.12).
6. **Standards & Best Practices:** Consistency with data, standards, or national best practices such as the American Association of State Highway and Transportation Officials (AASHTO)⁸, the National Association of City Transportation Officials (NACTO)⁹, the Manual on Uniform Traffic Control Devices (MUTCD)¹⁰, and the Federal Highway Administration (FHWA)¹¹.
7. **Project Constraints:** Alignment with the general scope of the project and currently available project funding.

This approach emphasizes use of data-driven decision making as a primary guiding factor while seeking balance considering the street function, user impacts, and varied public input. To reinforce the value of public input, all concept design alternatives presented were technically feasible. All recommendations are grounded in achieving the project goal of improving safety for all users.



6th Street Active Transportation Improvement Project

Staff Concept Design Recommendations Memo

Decision-Making Assumptions

The following assumptions are made as part of these staff recommendations:

- **The Project will Advance to Construction:** The general project scope and improvements have been planned, identified, and recommended by the city through several previous plans and studies. Local funding for project design has been allocated, and construction funding has been secured through the Washington State Department of Transportation (WSDOT) Pedestrian and Bicycle Grant Program¹². Some public input received included broad comments such as “leave the street alone” – These broad comments still provide value and insight into varied public perceptions regarding the project, but for the purposes of these staff recommendations, it is assumed that the project will advance to construction and staff recommendations merely seek to identify specific design parameters within the general scope of project as previously identified.
- **The Project is Financially Constrained:** The City has applied for and has been awarded limited grant funding¹² for construction of project improvements, and no additional project funding is anticipated for construction. Almost all design concepts developed to date align with project construction funding to ensure that construction is practical and realistic. Design alternatives (including some suggested through the public input process) which request improvements beyond the available project budget are not considered but may inform future opportunities to enhance the project corridor in the future. For example, comments which suggest adding a landscaped buffer between the street and sidewalk or raising planned bicycle facilities from the street level are not considered. These suggested concepts, while forward-thinking, would require a significant construction investment beyond available project funding.
- **Design Trade-Offs are Inevitable:** Almost all design alternatives presented to date include trade-offs which may reduce benefit for some users while improving benefit for other users. To assist the public during the concept design phase, exhibits outlined “pros” and “cons” for various alternatives and multiple Frequently Asked Questions (FAQs) were developed – These documents have been published to the project webpage²⁴ over the course of concept design development. Recommendations seek a balance of prioritizing vulnerable while ensuring considerations all road users. For example, vehicle intersection operations are expected to include slightly higher delays during peak travel hours to accommodate space for on-street bicycle facilities, but those delays are still within minimum acceptable limits based on current city policies.
- **Operations and Safety for All Users is Necessary:** The concept designs developed are grounded in previous studies and recommendations performed by the city which validated the general operational and safety parameters associated with the proposed roadway re-channelization. While the project has received a significant amount of input specific to bicycle and pedestrian facilities, alternatives which reduce safety for other users or create anticipated operational failure were not considered.
- **Public Input will be Limited Through Remaining Engineering Design:** Over the span of 2 years, the Engineering Division has had multiple touch points with the community including several opportunities for input related to concept designs. The staff recommendations provided are intended to provide a clear ‘blueprint’ for development of final engineering design based on an informed design decision-making approach. As such, during development of final engineering design, no broad opportunities for public input and comment are anticipated. Any additional opportunities for public input will be limited, specific, and may emphasize comments from established advisory committees such as the Complete Streets Committee. Interim engineering design plans and updates will continue to be published on the project website and comments can continue to be directed to the Engineering Division.



6th Street Active Transportation Improvement Project

Staff Concept Design Recommendations Memo

1. Bike Lane Physical Separation

<p>STAFF RECOMMENDATION</p> <p><i>Use of flexible post type bike lane physical separation (either with or without a fixed curb base) at locations <u>excluding</u> where the Bremerton Fire Department identifies emergency response concerns.</i></p>	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Public Input <input checked="" type="checkbox"/> Stakeholder Input <input type="checkbox"/> Previous Studies and Adopted Plans <input checked="" type="checkbox"/> Technical Analysis <input type="checkbox"/> Established City Policies <input checked="" type="checkbox"/> Standards and Best Practices <input checked="" type="checkbox"/> Project Constraints
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DECISION MAKING APPROACH: National research¹³ indicates that installing physical separation, such as flexible posts, can reduce vehicle / bicycle crash risk compared to unprotected lanes especially on streets with higher speeds and traffic volumes. The City currently has no defined standards or policy related to bike lane physical separation. Project survey feedback¹ indicates a majority of respondents (54%) at least somewhat support adding physical bike lane separation. Among supporters, most preferred MUTCD-compliant¹⁰ flexible posts over low-profile delineators, and over half agreed that separation should be omitted in areas where the Fire Department has identified emergency response concerns. Both AASHTO¹⁴ and NACTO¹⁵ guides identify emergency access as an essential factor when selecting bike facility types, however neither provides specific standards because conditions vary by street design and emergency response needs. To address this, the city coordinated closely with the Bremerton Fire Department, identifying specific intersections and constrained areas where physical separation would have the highest risk of impeding emergency response in lieu of not providing any physical separation. Studies which note emergency response is not impacted by road reconfigurations have been developed in scenarios without bike lane physical separation. Specifically, any physical separation installed would prevent vehicles from being able to pull to the curb with approaching emergency vehicles per Washington State law¹⁶. Because this is Bremerton’s first major transportation project proposing physical bike lane separation, a phased and adaptable approach is recommended. Physical separation will be installed primarily west of Warren Avenue, where traffic volumes and speeds are highest and where a center turn lane can be used as an alternate emergency response route. This approach allows the City to monitor real-world operations and make future adjustments or add additional physical separation based on observed conditions and user feedback. Further design refinement and opportunities for additional bike lane physical separation (especially east of Warren Avenue) including use of other types of physical separation will continue to be evaluated and coordinated through development of final engineering design.



OTHER CONSIDERATIONS: Similar agencies, including the Seattle Department of Transportation²⁵, report that flexible post systems require ongoing maintenance and periodic replacement. Additionally, the installation of bike lane physical separation will require specialized equipment for effective routine street sweeping at curbs and storm drains. The city should plan for associated costs within the annual operations and maintenance budget to ensure long-term performance, safety, and appearance.



6th Street Active Transportation Improvement Project Staff Concept Design Recommendations Memo

2. Olympic Avenue & Hewitt Avenue Intersection Alternatives (2 Alternatives Developed per Intersection)

<p>STAFF RECOMMENDATION</p> <p><i>Alternative A (Installation of Paved Center Islands)</i></p>	<input checked="" type="checkbox"/> Public Input <input checked="" type="checkbox"/> Stakeholder Input <input checked="" type="checkbox"/> Previous Studies and Adopted Plans <input type="checkbox"/> Technical Analysis <input type="checkbox"/> Established City Policies <input checked="" type="checkbox"/> Standards and Best Practices <input checked="" type="checkbox"/> Project Constraints
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DECISION MAKING APPROACH: National research¹⁷ indicates that installing a raised median at a crosswalk can reduce the likelihood of vehicle/pedestrian crashes. According to WSDOT¹⁸, pedestrian refuge islands provide several key benefits including reducing the distance pedestrians are exposed to moving traffic, increasing driver awareness of pedestrian crossings, and encouraging slower vehicle speeds by visually and physically narrowing the roadway. In a previous design memo prepared by the City’s consultant for the 6th Street Pavement Preservation Phase 3 Project, consideration of pedestrian refuge islands was recommended for future enhanced pedestrian crossings. Additionally, the paved center medians would reinforce required turning restrictions at both offset intersections improving operational safety. Survey results¹ indicated an overall preference for installing paved center islands at both intersections (Alternative A) over the use of only street paint and curbing (Alternative B). At Olympic Avenue, 50% of respondents preferred Alternative A and only 20% preferred Alternative B. At Hewitt Avenue, 47% of respondents preferred Alternative A and only 20% preferred Alternative B. Respondents noted that the paved center islands in Alternative A would make crossings feel safer and more visible to drivers. Installing paved center islands would preclude bike lane physical separation at those locations due to not allowing a clear route for emergency response, however, this trade-off aligns with community priorities, which ranked pedestrian safety as the highest overall weighted project priority. This recommendation reflects the community’s stated preference for improving pedestrian visibility and safety at key crossing points while maintaining overall multimodal balance.



OTHER CONSIDERATIONS: Both intersections include proposed Rectangular Rapid Flashing Beacons (RRFBs) to further improve crossing awareness and visibility. During final engineering design, the City will evaluate whether to include flashing beacon pushbuttons or signage on the center islands, will coordinate with the Fire Department to determine if low-profile, mountable curbs are appropriate, and review turn restrictions and identify the best combination of signage, curbs, or other design treatments to discourage prohibited turns. Lighting levels at the proposed enhanced pedestrian crossings will be evaluated during final engineering design and construction may include additional light fixtures.



6th Street Active Transportation Improvement Project

Staff Concept Design Recommendations Memo

3. Naval Avenue Fully Protected Intersection

<p>STAFF RECOMMENDATION</p> <p><i>Defer consideration of a fully protected intersection at 6th Street and Naval Avenue at this time</i></p>	<input checked="" type="checkbox"/> Public Input <input type="checkbox"/> Stakeholder Input <input type="checkbox"/> Previous Studies and Adopted Plans <input checked="" type="checkbox"/> Technical Analysis <input type="checkbox"/> Established City Policies <input checked="" type="checkbox"/> Standards and Best Practices <input checked="" type="checkbox"/> Project Constraints
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DECISION MAKING APPROACH: A fully protected intersection can provide the highest level of safety and comfort for people walking, biking, and rolling at major multimodal street connections. While both 6th Street and Naval Avenue include planned on-street bike lanes, development of a fully protected intersection was initially ruled out early primarily due to being outside of the scope of project which sought lower-cost treatments and utilized existing street space. Public feedback received in 2024 emphasized a strong desire to re-consider and develop fully protected intersection concept designs for this intersection which were ultimately developed and presented in 2025 utilizing both AASHTO¹⁴ and NACTO¹⁵ guidance. Development of a fully protected intersection within the existing right-of-way was determined to not be feasible as documented in a technical memo¹⁹ summarizing concept designs at the Naval Avenue intersection. Survey feedback¹ on the fully protected intersection concept at Naval Avenue was mixed, with 47% expressing at least some support, 14% unsure, and 39% opposed. Supporters cited safety benefits for pedestrians and cyclists, while others raised concerns about cost, property impacts, and potential congestion. With planned bike facilities on both 6th Street and Naval Avenue, this intersection remains an excellent long-term candidate for a fully protected design. The estimated cost of constructing a fully protected intersection, as developed, significantly exceeds current project funding levels by several million dollars and would require impactful property acquisition. Such intersections have typically been implemented in areas with established high bicycle and pedestrian use, which may be more appropriate in future years as additional multimodal improvements are constructed and as active transportation mode share increases. Given current funding and project scope constraints, implementation under this phase of the 6th Street project is not feasible, but future evaluation is encouraged.



OTHER CONSIDERATIONS: The fully protected intersection design concept could be revisited at a later time as part of a broader future planning effort.



6th Street Active Transportation Improvement Project

Staff Concept Design Recommendations Memo

4. Naval Avenue Intersection Design Alternatives (2 Alternatives Developed)

<p>STAFF RECOMMENDATION</p> <p><i>Alternative A (Separated Bike Lanes with No Separate Eastbound Vehicle Right Turn Lane)</i></p>	<input checked="" type="checkbox"/> Public Input <input checked="" type="checkbox"/> Stakeholder Input <input checked="" type="checkbox"/> Previous Studies and Adopted Plans <input checked="" type="checkbox"/> Technical Analysis <input type="checkbox"/> Established City Policies <input checked="" type="checkbox"/> Standards and Best Practices <input checked="" type="checkbox"/> Project Constraints
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DECISION MAKING APPROACH: In lieu of a fully protected intersection design, survey feedback¹ generally favored Alternative A (41%), which excludes a separate eastbound vehicle right-turn lane to increase bike lane separation and remove the conflict point for cyclists and vehicles entering a turning lane. Alternative B, which included a separate vehicle right-turn lane, was supported by 29% of respondents. Another 20% selected “None,” expressing concern about any reconfiguration of the existing roadway. Traffic analysis²⁰ conducted for this project found that both Alternatives A and B operate within the City’s minimum acceptable intersection performance² through long-range traffic forecasts, however these traffic models cannot accurately model traffic impacts associated with specific operations at the Naval Base Kitsap – Bremerton (NBK-BR) Naval Gate. During peak traffic periods, traffic models predict vehicle queues can be expected to extend beyond any short vehicle right-turn lane even as provided in Alternative B, greatly reducing its benefit. In other words, the additional separate eastbound right-turn lane in Alternative B provides value during the onset of peak traffic but would not meaningfully improve traffic flow once vehicles stack up beyond the turn lane. Given the limited operational benefit of a dedicated right-turn lane and the safety advantages of separated bike lanes, staff recommend Alternative A as the most balanced option which aligns with the survey preference. This design enhances visibility and safety for vulnerable users while providing acceptable expected traffic performance.



OTHER CONSIDERATIONS: The City’s Joint Compatibility Transportation Plan (JCTP)³, developed in coordination with NBK-BR, acknowledges that occasional traffic backups on city streets occur due to gate and base operations. These conditions are outside the City’s control and are difficult to model since gate operations are managed solely by the Navy. Additionally, planned long-term Navy construction activities which are outlined in a recent Environmental Impact Statement (EIS) for the Bremerton Waterfront Infrastructure Improvements Project²⁶ should continue to be coordinated to ensure acceptable traffic operations and safety. The 6th Street and Naval Avenue intersection is particularly sensitive to Navy operations, and the city should continue to monitor intersection performance and operational trends to determine if or when future operational improvements become necessary.

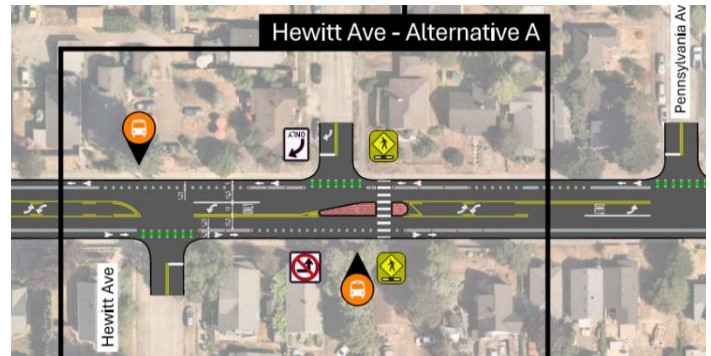


6th Street Active Transportation Improvement Project Staff Concept Design Recommendations Memo

5. Roosevelt Avenue to Pennsylvania Avenue Alternatives (2 Alternatives Developed)

<p>STAFF RECOMMENDATION</p> <p><i>Alternative A (Provide Center Left-Turn Lane with Reduced Bike Lane Buffer)</i></p>	<input checked="" type="checkbox"/> Public Input <input type="checkbox"/> Stakeholder Input <input type="checkbox"/> Previous Studies and Adopted Plans <input checked="" type="checkbox"/> Technical Analysis <input type="checkbox"/> Established City Policies <input checked="" type="checkbox"/> Standards and Best Practices <input checked="" type="checkbox"/> Project Constraints
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DECISION MAKING APPROACH: Survey feedback¹ was split between Alternative A (32%) and Alternative B (38%) with 22% of respondents preferring none of the options presented. Alternative A includes a center left-turn lane, while Alternative B removes it to widen bike lane buffers. A technical evaluation²¹ of the center turn lane was performed project-wide by the project consultant. The divided response reflects differing community priorities between maximizing bike buffer width and maintaining turn lane access and corridor consistency. Many respondents who selected “None” and provided a comment cited opposition to bike lanes and concerns regarding traffic congestion.



While survey feedback slightly preferred Alternative B, Alternative A provides the only configuration that:

- Allows installation of the refuge island at Hewitt Avenue, as recommended under the “Olympic & Hewitt Avenue Intersection Alternatives” and as preferred by survey respondents.
- Allows maximum physical bike lane separation due to including a center turn lane for emergency response.
- Maintains a consistent street layout which can reduce driver confusion and improve predictability.
- Maintains better access to adjacent neighborhoods by not fully restricting Hewitt Avenue left-turn access.
- Provides increased horizontal separation between opposing vehicular traffic.
- Allows legal²² two-stage turning movements from Roosevelt Avenue and Hewitt Avenue, improving safety for left-turning drivers.

Implementation of Alternative B would preclude installation of a pedestrian refuge island at Hewitt Avenue and, without physical bike lane separation, could lead to vehicles unlawfully parking in the bike lane due to homes directly fronting the street creating potential safety conflicts for cyclists.

Alternative A best balances user safety, consistency, and operational reliability along this corridor aligning with community preferences emphasizing pedestrian safety and use of physical bike lane separation.



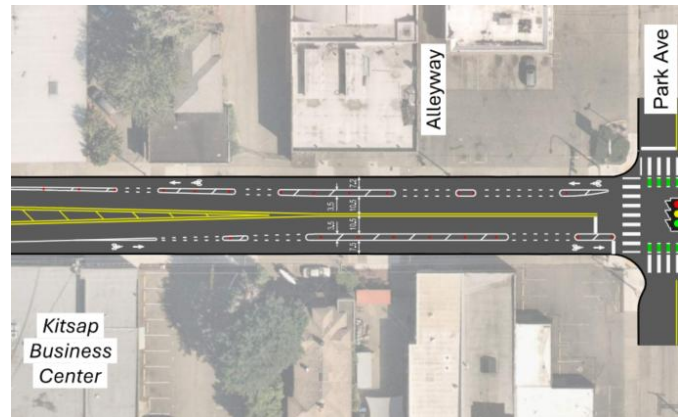
6th Street Active Transportation Improvement Project

Staff Concept Design Recommendations Memo

6. Warren Avenue to Park Avenue Alternatives (2 Alternatives Developed)

<p>STAFF RECOMMENDATION</p> <p><i>Alternative A (No Center Left-Turn Lane with Maximized Bike Lane Buffers)</i></p>	<input checked="" type="checkbox"/> Public Input <input type="checkbox"/> Stakeholder Input <input type="checkbox"/> Previous Studies and Adopted Plans <input checked="" type="checkbox"/> Technical Analysis <input type="checkbox"/> Established City Policies <input checked="" type="checkbox"/> Standards and Best Practices <input checked="" type="checkbox"/> Project Constraints
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DECISION MAKING APPROACH: Public input¹ indicated a preference for Alternative A (44%) which reduces 6th Street to 2-lanes west of Park Avenue providing additional street space for buffered bike lanes. Alternative B, which was recommended in a technical memo²¹ provided by HDR, was supported by 32% of respondents and provided a center left-turn lane and limited bicycle buffers. City crash data included in this memo identified the block of 6th Street between Warren Avenue and Park Avenue as having the highest crash rate east of Warren, particularly involving driveway-related angle collisions. It is, however, noted in this memo that the majority of these reported crashes would likely not have been preventable through inclusion of a center left-turn lane. Additionally, the memo notes that operational benefits of a center turn lane diminish in downtown urban core areas due to more dense street circulation and higher pedestrian activity.



To balance space between all modes, the updated design presented in 2025 removes a previously proposed eastbound left-turn lane at Park Avenue, reallocating that width to provide a bike lane buffer approaching the intersection. Alternative A would increase the length of buffered bike lane west of the Park Avenue intersection providing the most street consistency and predictability for users. The reduction of the roadway from a 4-lane undivided to 2-lane undivided in this area will reduce the number of vehicle conflict points while accommodating the lower vehicle volumes and travel speeds in the downtown core. Physical bike lane separation is not recommended in this area (as discussed under “Bike Lane Physical Separation”) due to the lack of a center turn lane for emergency response and limited street width.

Alternative A reflects the public’s priority for maximizing buffered bike lanes in lieu of providing a center turn lane. While this recommendation deviates from the original recommendation by HDR for Alternative B²¹, it achieves the project goals of improving safety for all users, maintaining adequate operations, and emphasizing safety and comfort for vulnerable road users.



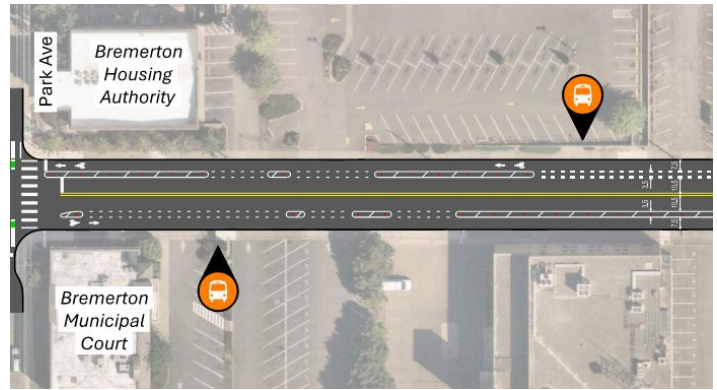
6th Street Active Transportation Improvement Project

Staff Concept Design Recommendations Memo

1. Park Avenue to Pacific Avenue Alternatives (3 Alternatives Developed)

<p>STAFF RECOMMENDATION</p> <p><i>Alternative B (Removal of All On-Street Parking with Increased Bike Lane Separation)</i></p>	<input checked="" type="checkbox"/> Public Input <input type="checkbox"/> Stakeholder Input <input type="checkbox"/> Previous Studies and Adopted Plans <input checked="" type="checkbox"/> Technical Analysis <input type="checkbox"/> Established City Policies <input checked="" type="checkbox"/> Standards and Best Practices <input checked="" type="checkbox"/> Project Constraints
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DECISION MAKING APPROACH: Survey results¹ indicated the strongest support for Alternative B (33%), which removes on-street parking to provide additional space for buffered bike lanes. Alternative A, which retained some parking with limited bike lane buffers, received slightly less support (26%). Alternative C, which added a center left-turn lane but removed parking, had the lowest support (11%) among all presented alternatives. 19% of respondents selected “None” with associated comments cited concern with parking removal or a desire to make no changes to the current roadway.



Discussions with City parking administration staff indicated that 18 existing on-street parking stalls in this area do not routinely approach capacity, do not serve residential parking permit holders, and are located along a block with ample surface lot parking. While the removal of on-street parking is a design trade-off, the repurposing allows for more uniform bike lane buffers, increasing comfort for both cyclists and pedestrians.

Crash data reported in an HDR memo²¹ shows that this block of 6th Street has experienced relatively few crashes, despite multiple driveways and parking access points. Maintaining the existing two-lane street configuration is expected to preserve acceptable operations given current traffic volumes are approximately 60% lower than those west of Warren Avenue. Repurposing the existing on-street parking for buffered bike lanes enhances predictability and visibility, reducing conflicts between vehicles backing or turning from driveways and cyclists traveling in the bike lane. Physical (vertical) bike lane separation is not recommended in this segment, as discussed under “Bike Lane Physical Separation” due to the lack of a center turn lane for emergency response, but both cyclist and pedestrian comfort will increase due to the added buffering from vehicle lanes.

Alternative B provides a balanced outcome considering public input, consistent roadway operations, enhanced comfort for vulnerable road users, and clearer separation between modes.



6th Street Active Transportation Improvement Project

Staff Concept Design Recommendations Memo

2. Parking Protected Bike Lanes East of Pacific Avenue (No Alternatives Developed)

<p>STAFF RECOMMENDATION</p> <p><i>Provide parking protected bike lanes east of Pacific Avenue</i></p>	<input checked="" type="checkbox"/> Public Input <input type="checkbox"/> Stakeholder Input <input type="checkbox"/> Previous Studies and Adopted Plans <input checked="" type="checkbox"/> Technical Analysis <input type="checkbox"/> Established City Policies <input checked="" type="checkbox"/> Standards and Best Practices <input checked="" type="checkbox"/> Project Constraints
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DECISION MAKING APPROACH: Survey feedback¹ showed a majority of respondents (60%) supported the parking-protected bike lane design concept, with many strongly in favor. 31% opposed the concept, however, many of those respondents also provided comments indicating opposition to any type of on-street bike lane rather than the parking-protected configuration itself. Overall, the input suggests strong support for creating safer, more comfortable conditions for people biking east of Pacific Avenue. Parking-protected bike lanes create a buffer zone between moving traffic and cyclists by positioning parked vehicles along the edge of the travel lane. This configuration provides multiple safety benefits:



- Increased physical and visual separation for cyclists.
- Reduced vehicle speeds, as parked cars visually narrow the travel way.
- Improved comfort and predictability for both cyclists and drivers.

Design best practices from AASHTO¹⁴ and NACTO¹⁵ recommend including a painted or physical buffer between the parked vehicles and the bike lane to prevent dooring conflicts (where car doors open into the bike lane). This project will incorporate those guidelines to ensure adequate clearance and consistent markings.

Providing parking-protected bike lanes east of Pacific Avenue enhances safety and user comfort while retaining essential residential parking access. The design reflects strong community support and aligns with national guidance for modern, context-sensitive bike infrastructure.

OTHER CONSIDERATIONS: Along the south side of 6th Street immediately west of Washington Avenue, there are currently two designated on-street parallel parking spaces. The existing street width in this area does not allow sufficient space to accommodate a buffer zone between the proposed bike lane. During final design development further evaluation will be performed to determine alternative treatments or use for this current parking area.



6th Street Active Transportation Improvement Project

Staff Concept Design Recommendations Memo

3. Pedestrian and Bicycle Signal Improvements

<p>STAFF RECOMMENDATION</p> <p><i>Implement Leading Pedestrian Intervals (LPI) project-wide at signalized intersections and install bike signal indications only where required by the MUTCD</i></p>	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Public Input <input type="checkbox"/> Stakeholder Input <input type="checkbox"/> Previous Studies and Adopted Plans <input checked="" type="checkbox"/> Technical Analysis <input type="checkbox"/> Established City Policies <input checked="" type="checkbox"/> Standards and Best Practices <input type="checkbox"/> Project Constraints
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DECISION MAKING APPROACH:

Leading Pedestrian Interval (LPI): While not presented as an alternative, corridor-wide deployment of LPI is recommended at all signalized intersections along the project. LPI gives pedestrians the opportunity to enter the crosswalk at an intersection seconds before vehicles are given a green indication allowing them to better establish a presence in the crosswalk. National research²³ has found that LPI can reduce pedestrian-vehicle crashes by up to 13%. Based on discussions with City electronics and signal staff, all of the traffic signal controllers on the project can be programmed to include LPI and implementation is anticipated to occur prior to project construction.



Bike Signal Indications: The MUTCD¹⁰ provides guidance and requirements for use of bicycle signals. The current staff recommendation is to only provide bicycle signals where required by the MUTCD. This approach ensures federal compliance, frees project funding for other improvements, and allows future evaluation and implementation of bicycle signals as use and operations change over time. Based on the design alternatives presented, the only required bike signal is in the westbound direction at the intersection of 6th Street and Warren Avenue. In accordance with the MUTCD, a bike signal is required to continue a through bicycle lane on the right-hand side of a mandatory vehicle right-turn lane. At all signalized intersections, bicycle detection will be provided where not currently present and signal timing will be reviewed.

No Turn on Red (NTOR) Signs: The MUTCD¹⁰ provides guidance and requirements for use of NTOR signs. Specific to this project's inclusion of on-street bicycle facilities, the MUTCD states the presence of an exclusive bicycle signal phase as a circumstance which should consider use of NTOR signage. Other factors include inadequate sight distance or more than three right-turn-on-red crashes reported in a 12-month period. The current staff recommendation for additional NTOR signs is only at the westbound approach of 6th Street at Warren Avenue where an exclusive bike signal phase is proposed. There are no crash records indicating an intersection with more than three right-turn-on-red crashes reported in a 12-month period. There is also no City-specific policy regarding deployment of NTOR signs. As with most regulatory signs, installing them at too many locations without clear warrants or enforcement can lead to motorist non-compliance and ultimately reduced safety. Inclusion of additional NTOR signs can be installed in the future at a relatively low cost as additional City policies are implemented or where additional warrants are evaluated and documented.



6th Street Active Transportation Improvement Project

Staff Concept Design Recommendations Memo

Citations and References

- ¹ 2025 Online Project Survey Summary
www.bremertonwa.gov/DocumentCenter/View/13006/6th-ATI-2025-Survey-Data-PDF?bidId=
- ² City of Bremerton Comprehensive Plan
www.bremertonwa.gov/185/Comprehensive-Plan
- ³ Joint Compatibility Transportation Plan (JCTP)
www.bremertonwa.gov/1356/Joint-Compatibility-Transportation-Plan
- ⁴ 6th Street and 11th Street Corridor Feasibility Study
www.psrc.org/media/7917
- ⁵ Bremerton Strategic Road Safety Plan
www.psrc.org/media/7918
- ⁶ City of Bremerton Complete Streets Program
www.codepublishing.com/WA/Bremerton/html/Bremerton11/Bremerton1110.html
- ⁷ City of Bremerton Transportation Development Code
www.codepublishing.com/WA/Bremerton/html/Bremerton11/Bremerton1112.html
- ⁸ American Association of State Highway and Transportation Officials (AASHTO)
www.transportation.org
- ⁹ National Association of City Transportation Officials (NACTO)
www.nacto.org
- ¹⁰ Manual on Uniform Traffic Control Devices (MUTCD)
mutcd.fhwa.dot.gov/kno_11th_Edition.htm
- ¹¹ Federal Highway Administration (FHWA)
highways.dot.gov
- ¹² Washington State Department of Transportation (WSDOT) Pedestrian and Bicycle Grant Program
wsdot.wa.gov/business-wsdot/support-local-programs/funding-programs/active-transportation-funding-programs/pedestrian-bicycle-program
- ¹³ Crash Modification Clearinghouse (Countermeasure ID: 11296)
cmfclearinghouse.fhwa.dot.gov/detail.php?facid=11296
- ¹⁴ AASHTO Guide for the Development of Bicycle Facilities, 5th Edition
aashtojournal.transportation.org/aashto-releases-5th-edition-of-comprehensive-bicycle-guide/
- ¹⁵ NACTO Urban Bikeway Design Guide, 3rd Edition
nacto.org/publication/urban-bikeway-design-guide/
- ¹⁶ RCW 46.61.210, Operation of Vehicles on Approach of Emergency Vehicles
app.leg.wa.gov/RCW/default.aspx?cite=46.61.210
- ¹⁷ Crash Modification Clearinghouse (Countermeasure ID: 8799)
cmfclearinghouse.fhwa.dot.gov/detail.php?facid=879



6th Street Active Transportation Improvement Project

Staff Concept Design Recommendations Memo

- 18 Washington State Department of Transportation Active Transportation Programs Design Guide
wsdot.wa.gov/engineering-standards/all-manuals-and-standards/manuals/active-transportation-programs-design-guide
- 19 6th Street and Naval Avenue Intersection Alternatives Evaluation Memo (HDR, 2025)
- 20 6th Street Supplemental Intersection Traffic Analysis Memo (HDR, 2025)
- 21 6th Street Two-Way Left-Turn Lane (TWLTL) Memo (HDR, 2025)
- 22 RCW 46.61.290, Required position and method of turning at intersections
app.leg.wa.gov/RCW/default.aspx?cite=46.61.290
- 23 Crash Modification Clearinghouse (Countermeasure ID: 9918)
cmfclearinghouse.fhwa.dot.gov/detail.php?facid=9918
- 24 6th Street Active Transportation Improvement Project Webpage
www.bremertonwa.gov/1342/6th-Street-Active-Transportation-Improve
- 25 Seattle Department of Transportation – Even Better Bike Lanes
www.seattle.gov/transportation/projects-and-programs/programs/bike-program/better-bike-lanes
- 26 Navy Bremerton Waterfront Infrastructure Improvements Environmental Impact Statement
bremertonwaterfrontimprovements.eis.com