

**APPENDIX B**

**TRAFFIC ANALYSIS TECHNICAL MEMORANDUM**

# TECHNICAL MEMORANDUM

Project: West Bay Park Phase 1  
Subject: Traffic Impact Analysis  
Date: December 7, 2007  
Author: Tod S. McBryan, P.E., Principal  
Heffron Transportation, Inc.

---

This memorandum presents traffic generation estimates, access analyses, and information to support the State Environmental Policy Act (SEPA) checklist being prepared for the proposed West Bay Park Phase 1 project in Olympia, Washington. The scope and methodology for the analyses were coordinated with City of Olympia Transportation review staff. Please contact me (206-527-8410) with any questions regarding this analysis.

## Project Description

The City of Olympia Parks, Arts and Recreation Department (OPARD) proposes to implement the first phase of a new waterfront park, which will integrate public access and recreation opportunities with shoreline and habitat restoration on the site of a former lumber mill on West Bay (part of Budd Inlet). The site's western boundary is West Bay Drive, which provided access during its former use for milling operations. The site extends about 360 feet north of Brawne Avenue NW, and about 360 feet south of Giles Avenue NW. Activity at the site was discontinued and most upland and shoreline structures have been demolished. The site is currently vacant and has three existing narrow vehicle entry points from West Bay Drive that are closed with locked gates to prevent public access. The park site is partially paved and includes concrete, asphalt, metal, and brick debris, derelict piling, paved roads/asphalt, areas of erosion and non-native vegetation. The upland portion of the site has large paved areas that are bisected by decommissioned railroad tracks.

The planned West Bay Park Phase 1 improvements would occur on 3.97 acres of property that was purchased by the City of Olympia in 2006 from the Port of Olympia and from the BNSF railroad. Olympia's Rotary Club is sponsoring a portion of this project, which will include a viewing area at Rotary Point, a launch for hand-carried boats (e.g. canoes and kayaks), trails, meadow areas and landscaping. Construction of the Phase 1 park improvements would include removal of existing debris, site grading, construction of park improvements, installation of vegetation, and shoreline restoration. The following lists the key components of West Bay Park Phase 1; Figure 1 (attached) shows the proposed site plan).

- A new full-access driveway would be constructed at the south end of the park, leading to a vehicle turnaround and 10-stall parking area in the central portion of the park. All vehicular access to the park would occur to and from this driveway; a sidewalk would be constructed along the southeast edge of this access driveway to allow for pedestrian access between the park and West Bay Drive.

- Two pedestrian/bicycle access points would be created using the two existing northern vehicular driveways. Vehicular access would not occur at these locations and bollards would be installed to limit access to pedestrians and bicyclists.
- Marked and signed crosswalks are proposed on West Bay Drive in two locations—one immediately south of the proposed vehicular access driveway, and a second immediately east of the Giles Avenue NW intersection at the central pedestrian/bicycle access point.
- New walking/bike trails of asphalt pavement would be constructed to encircle the Rotary Point area and lead to a beach access point with steps on the south side of Rotary Point.
- A launch for hand-carried boats, and a walking ramp, would be constructed on the north side of Rotary Point.
- Signage, fixed and removable bollards, handrails, a bicycle shelter with bike racks, trash receptacles, and benches in the upland park area would be included.
- Native plants, topsoil, upland plantings (including native trees and shrubs, and Ecology lawn meadows) and irrigation would be installed.

## Project Traffic Volumes

Trip generation for the proposed West Bay Park Phase 1 was determined using rates published in *Trip Generation* (Institute of Transportation Engineers [ITE], 7<sup>th</sup> Edition, 2003). This reference summarizes the results of numerous traffic studies throughout the country for a variety of land-use types. As coordinated with City of Olympia Transportation review staff, rates published for a Regional Park (Land Use Code 417) were applied to the proposed project. Table 1 summarizes the proposed project’s total estimated vehicle trip generation for an average weekday.

As shown, the proposed project is estimated to generate 18 vehicle trips on an average weekday and 1 trip during the morning and afternoon peak commute hours on an average weekday. This relatively low level of activity is expected based on average conditions. On summer days when the weather is warmer, the number of trips would likely be somewhat higher; on days in the winter when weather is colder and wet, the number of trips will likely be lower. Overall, the limited number of parking spaces and the relatively small amount of amenities will restrict the volume of traffic at the site.

**Table 1. Vehicle Trips Generated by the Proposed West Bay Park Phase 1**

Land Use	Proposed Size	Daily Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Regional Park <sup>1</sup>	3.97 acres	18	1	0	1	0	1	1

Source: Heffron Transportation, Inc., December 2007.

1. Estimated using rates for Regional Park (LU Code 417) from *Trip Generation* (ITE, 7<sup>th</sup> Edition, 2003).

## Site Access

Site access plans for West Bay Park Phase 1 were developed considering both the City of Olympia design standards, and the recommendations and preferred alternative identified in the *West Bay Drive*

*Corridor Study*.<sup>1</sup> The *West Bay Drive Corridor Study* indicates that future widening along the park property would occur to provide sidewalks and bike lanes on both sides of the street. City staff indicated that the widening of West Bay Drive would occur on the east side of the road due to slope on the west side and since the right-of-way would already be owned by the City on the east side along the park frontage. As a result, the design for the park's driveway assumed that the future roadway configuration will keep the western sidewalk and curb in its current location. The site's design considers the City's planned improvements to West Bay Drive that would include the existing sidewalk on the west side of the road, a 5-foot southbound bike lane, two 11-foot travel lanes, a 5-foot northbound bike lane, and a 6-foot sidewalk on the east side of roadway.

It should also be noted that the *West Bay Drive Corridor Study* provides guidance for future improvements to the West Bay Drive/Brawne Avenue intersection, which is adjacent to the proposed park. The *West Bay Corridor Study* recommends future corridor improvements provide a northbound-to-westbound left-turn lane for the intersection and a landscaped pedestrian crossing island on the north leg of the intersection.

## Vehicular Access

Vehicular site access onto West Bay Drive is proposed to occur from a single driveway at the southwest end of the Phase 1 park improvements. The driveway would be located at approximately the same location as the existing southernmost access that served prior uses on the site. However, the access driveway would be reconfigured to meet City of Olympia design standards outlined in *Chapter 4H – Access Points and Intersection Criteria* of the City's *Engineering Design & Development Standards* (November 2004, Chapter 4 updated in 2007). In addition, to help determine specific requirements, a new machine count documenting existing vehicle trips and their speed was performed by the City of Olympia in May 2007. The existing weekday traffic volume on West Bay Drive is about 6,000 vehicles per day with 85<sup>th</sup>-percentile speeds of about 36 mph<sup>2</sup>. Using these data, the park's planned access has been designed to meet the referenced design standards. As outlined in section 4H.140.A.2:

*“The angle between the extended centerline of a driveway and the centerline of the street being accessed shall be 90 degrees or as close to 90 degrees as feasible. In no case shall an angle of less than 60 degrees or more than 120 degrees be allowed.”*

As a result, the existing driveway approach has been realigned to meet West Bay Drive at a 90-degree angle. Other specific design requirements for the driveway outlined in the updated Chapter 4 of the *Engineering Design & Development Standards* were applied including:

- Driveways are to be constructed of Portland cement concrete.
- Grade breaks, including the tie to the roadway will be constructed as smooth vertical curves. The maximum change in driveway grade will be 8 percent within any 10 feet of distance on a crest and 12 percent within any 10 feet of distance in a sag vertical curve.
- Maximum driveway width for a two-way access drive onto an arterial or collector shall be 30 feet for commercial uses.

---

<sup>1</sup> Final Report, May 2005, City of Olympia – prepared by: Thurston Regional Planning Council

<sup>2</sup> Source: City of Olympia machine traffic volume and speed studies, May 16 thru 20, 2007.

- For commercial development where access by trucks with trailers is not expected to be routine, the geometric design of access points shall be based primarily on the turning characteristics of passenger cars (defined by AASHTO “P” design vehicle). This standard would apply to the park access drive.
- The access drive shall intersect the street with a continuous smooth grade, not interrupted by curb, gutter, sidewalks, or any rough, bumpy, or off-grade feature.
- Since the park is expected to generate less than 75 vehicle trips during the park’s peak hour, the conditions for a low-volume access point apply. As a result, the driveway has been designed and constructed according to Plan No. 4-7, Cement Concrete Driveway included in the *Engineering Design & Development Standard*. Standard Plan 4-7D is attached for reference.

The intersection would not meet volume warrants for any additional turn channelization (such as left-turn or right-turn pockets); therefore, none are proposed. Based on field observations, the sight lines from all three driveways are unobstructed by vertical or horizontal curves.

All movements to and from the park’s proposed access driveway are expected to operate at level of service (LOS) B or better during peak hours, based on the volume of traffic passing the site on West Bay Drive. The project is not expected to result in adverse impacts to traffic operations.

## Pedestrian Access

The *West Bay Drive Corridor Study* also provides guidance and recommendations for crosswalks. The study notes that pedestrian crossings occur legally at the intersection of any two streets, whether a crosswalk is marked or not. The City marks crosswalks at locations based on vehicle volumes, width of street, speed of vehicles, and number of pedestrians. Crosswalks are typically marked to draw driver’s attention to the crossing as well as to direct pedestrians to a particular crossing point. Since crosswalks require regular repainting or remarking, they are not marked at every intersection. In locations where crosswalks alone are not sufficient for safe pedestrian crossings, other devices are installed to improve crossing safety. In the West Bay Drive corridor, crossing islands are planned at key intersections along West Bay Drive where high concentrations of pedestrians are anticipated.

The proposed West Bay Park Phase 1 improvements include two marked and signed crosswalks on West Bay Drive. These crosswalks would be provided for pedestrians using the sidewalk on the west side of the roadway to access the park’s planned pedestrian access paths. They would also help connect the park to the residential properties to the west of West Bay Drive. Based on field observations, the traffic flow volume along West Bay Drive appears adequately low to allow regular gaps for pedestrian crossings. As mentioned previously, the 85<sup>th</sup>-percentile speed along the roadway was about 36 mph. Some vehicles currently travel at higher speeds. Due to the higher existing speeds, it is recommended that the Parks, Arts, and Recreation Department work closely with the City’s Public Works Department to confirm the best location for marked and signed crosswalks along West Bay Drive and to ensure that appropriate signage and markings are installed. The crosswalk locations may be interim facilities until the full West Bay Drive Corridor improvements are completed and center pedestrian medians can be installed. Enforcement of speed limits and pedestrian crossing laws for drivers should be conducted regularly after the park is opened.

## Parking Conditions

Typically, parking demand for new development projects is estimated using rates and equations published in *Parking Generation*.<sup>3</sup> However, that publication contains no data for any parks similar to the one proposed. Parking demand for the proposed West Bay Park Phase 1 was determined based on traffic generation estimates presented previously. As described, the park is expected to generate a relatively small volume of vehicular traffic on an average weekday. Based on the total daily traffic estimates and based on the proposed parking supply, peak parking demand would likely be 8 to 10 vehicles—filling the planned lot. Peak demand is most likely to occur on Saturdays. Because West Bay Drive is currently a two lane roadway, there is not opportunity for additional demand to occur on-street, adjacent to the park. The planned park is not expected to result in adverse impacts to parking conditions in the local area.

## Transportation Information for the SEPA Checklist

**Transit** – Intercity Transit does not provide fixed route service on West Bay Drive at the current time. There are no plans to add service along this stretch of roadway in the immediate future.

**Parking** – The proposed project would provide 10 parking spaces and eliminate none. There are no current parking spaces on the site as it is currently unused.

**New Roads** – The project will not require any new roads or streets, or improvements to existing roads or streets, other than the planned changes to access.

**Water, Rail or Air Transportation** – The project will provide access for hand-launched boats (such as canoes and kayaks) to access the West Bay area of Budd Inlet. The project would remove abandoned rail tracks purchased from the BNSF Railway. The project will not use or occur in the immediate vicinity of air transportation.

**Trip Generation** – The proposed project is anticipated to generate about 18 trips per day and about 1 trip during the morning and afternoon peak hours on an average weekday. Peak activity would likely occur at the site midday on summer weekend days.

**Measures to reduce transportation impacts** – The project will reconfigure the vehicular site access driveway to meet City of Olympia design standards and will limit access to one location. The project will limit the number of on-site parking spaces and will provide pedestrian and bicycle access facilities to encourage non-motorized access to the site.

## Conclusions and Recommendations

The proposed West Bay Park Phase 1 would not result in adverse impacts to transportation conditions in the site vicinity. The proposed vehicular access driveway would be designed consistent with City of Olympia design standards, and has been designed to consider future widening of West Bay Drive.

The following measures are recommended to enhance safety of pedestrian crossings planned for West Bay Drive at the park's entry points:

---

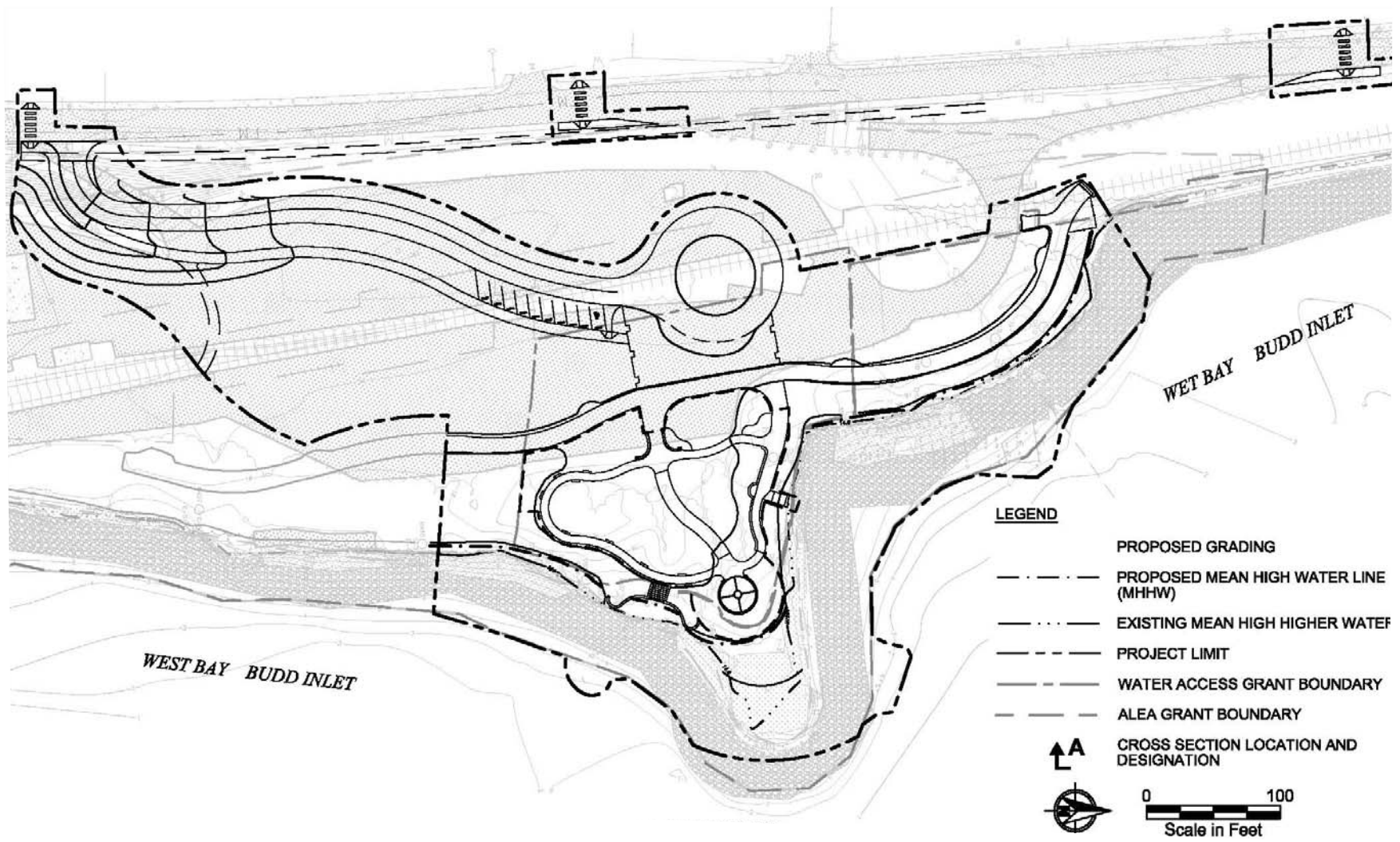
<sup>3</sup> Institute of Transportation Engineers, 3<sup>rd</sup> Edition, 2004.

- Work closely with the City's Public Works Department to confirm the best location for marked and signed crosswalks along West Bay Drive and to ensure that appropriate signage and markings are installed. The crosswalk locations may be interim facilities until the full West Bay Drive Corridor improvements are completed and center pedestrian medians can be installed.
- Enforce speed limits and pedestrian crossing laws for drivers regularly after the park is complete and opened.

Attachments: Figure 1. Site Plan

TSM/tsm

*West Bay Park Traffic Analysis - DRAFT*



City of Olympia  
West Bay Park Phase 1

Figure 1  
SITE PLAN AND ACCESS POINTS

heffron  
transportation, inc.