

## 7.0 ADDITIONAL TOPICS

The following section provides a discussion regarding the following additional topics: Intersection queuing, parking, transit and truck traffic.

### Queuing

A queuing analysis was conducted at all signalized intersection within the study area for the Horizon Year with Alternative 1 and 2 with the proposed improvements. The purpose of the analysis was to identify locations where the calculated level of service may not accurately reflect the actual delay experienced by drivers and additional improvements may be appropriate. The queuing analysis was conducted using Synchro 6.0 software. A copy of the queuing analysis worksheets can be found in **Appendix J**. The following intersections were identified as having potential queuing that would exceed the available storage capacity for at least one of the peak-hour periods evaluated:

- Kearney Street and Cesar Chavez Parkway: The analysis shows that the 95th percentile queue for the **westbound** movement would exceed the available storage capacity during both peak-hour periods, while the **northbound** movement would exceed the available storage capacity during the afternoon peak-hour period. The potential queuing is caused by vehicles exiting the I-5 NB off-ramp and turning south on Cesar Chavez Parkway and by vehicles turning left from Cesar Chavez Parkway traveling west along Kearny Street. Due to the signal spacing between this intersection and Logan Avenue and the I-5 NB off-ramp, the storage capacity for the northbound and westbound movement cannot be extended without major reconstruction of the I-5 bridge over Cesar Chavez Parkway and the ramp connectors to the SR-75 freeway. It is anticipated that this potential queuing problem would only be found during the morning and afternoon peak-hour periods. Additional improvements to this locations based on potential queuing are not recommended.
- Logan Avenue and Cesar Chavez Parkway: The analysis shows that the 95th percentile queue for several movements would exceed the available storage capacity during both peak-hour periods. Due to the signal spacing between intersections due to the grid street network, the storage capacity of this intersection cannot be extended. It is anticipated that this potential queuing problem would only be found during the morning and afternoon peak-hour periods. Additional improvements to this location based on potential queuing are not recommended.
- National Avenue and Cesar Chavez Parkway: The analysis shows that the 95th percentile queue for the **eastbound left-turn** movement and the **southbound** movements would exceed the available storage capacity during both peak-hour periods. Due to the signal spacing between this intersection and Logan Avenue and Main Street, the storage capacity for the northbound movement and the southbound movements cannot be extended. A potential mitigation for the southbound queuing could be the removal of parking during the peak-hour periods along the west side of Cesar Chavez Parkway. The peak-hour parking removal would provide the room for an additional southbound lane and provide additional queuing capacity. Additional improvements to this location based on potential queuing are not recommended.
- Newton Avenue and Cesar Chavez Parkway: The analysis shows that the 95th percentile queue for the **southbound** movements would exceed the available storage capacity during both peak-hour periods. Due to the signal spacing between this intersection and National Avenue, the storage capacity for the southbound movements cannot be extended. A potential mitigation for

the southbound queuing could be the removal of parking during the peak-hour periods along the west side of Cesar Chavez Parkway. The peak-hour parking removal would provide the room for an additional southbound lane and provide additional queuing capacity. Additional improvements to this location based on potential queuing are not recommended.

- Main Street and Cesar Chavez Parkway: The analysis shows that the 95th percentile queue for the **southbound** movements would exceed the available storage capacity during both peak-hour periods. Due to the signal spacing between this intersection and Newton Avenue, the storage capacity for the southbound movements cannot be extended. A potential mitigation for the southbound queuing could be the removal of parking during the peak-hour periods along the west side of Cesar Chavez Parkway. The peak-hour parking removal would provide the room for an additional southbound lane and provide additional queuing capacity. Additional improvements to this location based on queuing are not recommended.
- Harbor Drive and Cesar Chavez Parkway: The analysis shows that the 95th percentile queue for the **westbound** left-turn movements would be approximately 200 feet during the morning peak-hour periods. As part of the Port of San Diego/Caltrans truck access improvements, the westbound left-turn pocket will be extended to accommodate the anticipated queuing at this intersection. In addition to the westbound left-turn movements, the southbound right turn movement could have a maximum potential queue of approximately 600 feet during the morning peak-hours. Due to the signal spacing between this intersection and Main Street and the existing MTS trolley lines, the storage capacity for the southbound right-turn movement cannot be extended. Additional improvements to this location based on potential queuing are not recommended.
- National Avenue and 28th Street: The analysis shows that the 95th percentile queue for the **eastbound** left-turn, the **westbound** left-turn and the **southbound** through movement would exceed the available storage capacity during both peak-hour periods. In order to mitigate queuing at this location, an additional westbound lane would need to be constructed. The additional westbound lane would require additional right-of-way along the north side of National Avenue. This improvement would significantly affect the existing properties along the north side of National Avenue. Due to physical constraints, the additional westbound lane is not recommended at this time. Additional improvements to this location based on potential queuing are not recommended.
- Boston Avenue and 28th Street: The analysis shows that the 95th percentile queue for the **southbound** left-turn, the **northbound** thru and the **eastbound** movements would exceed the available storage capacity during the afternoon peak-hour. Physical constraints at this intersection due to the distance to adjacent intersections suggest that the storage capacity for any of those movements cannot be extended. Additional physical improvements to this location based on queuing are not recommended.
- Main Street and 28th Street: The analysis shows that the 95th percentile queue for the **eastbound** left-turn and the **southbound** movements would exceed the available storage capacity during the afternoon peak-hour period. Physical constraints at this intersection due to the distance to adjacent intersections suggest that the storage capacity for any of those movements cannot be extended. It is anticipated that this potential queuing problem would only be found during the morning and afternoon peak-hour periods. Additional physical improvements to this location based on potential queuing are not recommended.

- Main Street and 32nd Street: The analysis shows that the 95th percentile queue for the **westbound** left-turn, the **northbound** left-turn and the **southbound** left-turn movements would exceed the available storage capacity during the afternoon peak-hour period. Physical constraints at this intersection due to access to surrounding buildings suggest that the storage capacity for any of those movements cannot be extended. Additional improvements to this location based on potential queuing are not recommended.
- Main Street and I-15 Ramps: The analysis shows that the 95th percentile queue for the **eastbound** left-turn movement would be approximately 220 feet long and would exceed the available storage capacity of 150 feet. In order to improve the storage capacity for the eastbound movement, the bridge over the Chollas Creek would need to be widened. This improvement is not recommended. The queuing for the eastbound left-turn movement would only be experienced during the peak-hour periods. Additional improvements to this location based on queuing are not recommended.
- 32<sup>nd</sup> Street and Norman Street - Wabash Street: The analysis shows that the 95th percentile queue for the **westbound** and **southbound** movements would exceed the available storage capacity. This intersection is being studied in an on-going Caltrans report. The latest report includes the installation of a unidirectional connector ramp from eastbound Harbor Drive to northbound State Route 15. Another improvement under study is the Vesta Street Overcrossing at Harbor Drive connecting the wet and dry sides of the Naval Base San Diego. On November 1, 2010 the Navy temporarily closed the eastern leg (Norman Scott Road) of the 32<sup>nd</sup> Street/Norman Street-Wabash Street intersection to improve safety. The Navy is monitoring traffic to determine if this closure should remain. A preliminary analysis indicates that the projects under study would improve the intersection to acceptable levels and decrease the potential queuing problems.
- 32<sup>nd</sup> Street and Harbor Drive: The analysis shows that the 95th percentile queue would exceed the available storage capacity of several movements. This intersection is being studied in an on-going Caltrans report. The latest report includes the installation of a unidirectional connector ramp from eastbound Harbor Drive to northbound State Route 15. Another improvement under study is the Vesta Street Overcrossing at Harbor Drive connecting the wet and dry sides of the Naval Base San Diego. On November 1, 2010 the Navy temporarily closed the eastern leg (Norman Scott Road) of the 32<sup>nd</sup> Street/Norman Street-Wabash Street intersection to improve safety. The Navy is monitoring traffic to determine if this closure should remain. In addition to the Port of San Diego and Navy improvements, the preferred revenue constrained network for the RTP, approved by SANDAG's board for further study, includes the grade separation of the trolley tracks at the 32<sup>nd</sup> Street and Harbor Drive intersection. A preliminary analysis indicates that the mentioned projects would improve the intersection to acceptable levels and decrease the potential queuing problems.

In order to verify whether or not the potential queuing at the above listed intersections would cause the analysis results previously reported to be understated, Synchro 6.0 intersection analysis methodology was used. The Synchro 6.0 methodology calculates a "queuing delay" for each movement of the intersection, this calculation is not included in the HCM level of service analysis. The queuing delay accounts for queuing interaction at intersections and looks at how queues can reduce capacity through spillback, starvation, and storage blocking between lane groups. A review of Synchro's queuing reports indicated that the following intersections would have a "queuing delay" that could affect the level of service and capacity of the intersections:

- Logan Avenue and Cesar Chavez Parkway (Northbound right-turn movement during the afternoon peak-hour period);

- Main Street and Cesar Chavez Parkway (Southbound through movement during both peak-hour periods);
- **Boston Avenue and 28<sup>th</sup> Street** (Northbound through movement during the afternoon peak-hour period); and
- **Main Street and 28<sup>th</sup> Street** (Eastbound left-turn movement during the afternoon peak-hour period)

When comparing the average intersection delay reported by both the HCM and Synchro 6.0 methodologies for the above listed intersections, it was found that the LOS results at the Boston Avenue/28<sup>th</sup> Street and Main Street/28<sup>th</sup> Street intersection would decrease from LOS D to LOS E due to potential queue interaction. These intersections are shown in bold. The level of service results for the other two intersections would not worsen by considering queue interaction.

To mitigate the potential capacity decrease at these intersections along 28<sup>th</sup> Street due to queue interaction, it is recommended that the signal timing along the 28<sup>th</sup> Street corridor between Harbor Drive and National Avenue be synchronized in a way to maximize vehicular progression through the closely spaced intersections, while providing queue clearance. The coordination along 28<sup>th</sup> Street would be enhanced with the grade separation of the trolley lines at the intersection of Harbor Drive and 28<sup>th</sup> Street assumed in the preferred revenue constrained network for the RTP, approved by SANDAG's board for further study on December 17<sup>th</sup>, 2010. **Appendix L** includes the HCM and queuing analysis worksheets for the intersections along Cesar Chavez Parkway, 28<sup>th</sup> Street and 32<sup>nd</sup> Street with the following improvements assumed to be completed:

- Additional southbound lane along Cesar Chavez Parkway between Logan Avenue and Main Street. This additional lane could be provided by the removal of on-street parking along the west side of Cesar Chavez Parkway during the morning and afternoon peak-hour periods;
- Grade separation for the trolley tracks at the intersection of 28<sup>th</sup> Street and Harbor Drive;
- Grade separation for the trolley tracks at the intersection of 32<sup>nd</sup> Street and Harbor Drive;
- Traffic signal coordination along 28<sup>th</sup> Street between National Avenue and Harbor Drive;
- Traffic signal coordination along 32<sup>nd</sup> Street between Harbor Drive and Wabash Avenue; and
- Closure of the east leg of Norman Street at the intersection of 32<sup>nd</sup> Street and Norman Street-Wabash Street, recently implemented on a temporary/trial basis by the Navy.

As shown in Appendix L, the improvements listed above would decrease the potential queuing problems for the critical movements. Additional potential queuing may be experienced along minor movements due to signal coordination parameters. It is anticipated that a detailed coordinated plan would be evaluated in the future based on actual traffic volumes to better serve the demand of each corridor system.

## **Parking**

Parking in Barrio Logan is accommodated through on-site parking, leased surface parking lots, and on-street parking. The lack of adequate on-street and structured parking is a primary issue in Barrio Logan. This shortage of parking is due to the lack of on-site parking being provided for workers at harbor-related industries. These workers use parking lots along the north side of Harbor Drive and surface lots within Barrio Logan, which have been leased by their employers, and on-street parking in Barrio Logan. The use of on-street parking has led to the City establishing residential parking districts in Barrio Logan to ensure that residential areas have adequate parking. In order to implement the Bayshore Bikeway through the community, approximately 1,350 spaces of the leased harbor-working parking would be lost, potentially resulting in further demands for on-street parking.

In order to address parking deficiencies, the community plan identifies the following strategies:

- Require new development to provide adequate off-street parking to serve their needs
- Encourage the development of multi-story parking structures within the identified Transition Zone along Main Street between Evans Street and 28th Street to provide for additional parking for Port tenants, thereby reducing the potential for spillover onto on-street parking.
- Work with the Navy and Port of San Diego to enhance their Transportation Demand Management (TDM) strategies for reducing single occupant vehicle travel (and parking demand). Strategies increase use of van pools or car pools, shuttle vehicles from transit stations and park and ride lots, shared use parking for workers use during work hours and for residential and recreational use outside of work hours, and bicycle storage facilities. Currently there two major employers near Barrio Logan who participate in the TDM programs:
  - NASSCO: The approximately 3,500 employees of NASSCO have accessibility to parking spots for vanpools. The company subsidizes 25% of the cost of transit pass and/or vanpool cost. The company also provides bike racks and pre-tax payroll deductions for the purchase of transit passes, and a commuter information system for users of the TDM program.
  - Naval Base San Diego: The approximately 42,000 military personnel and 7,000 civilian workers have access to vanpools and transit passes. Military personnel are able to apply for the Transportation Incentive Program (TIP) established by the Navy. The TIP is designed to pay for mass transit cost incurred by personnel in their local commute from residence to permanent duty station. As of January 2011 participants of the TIP program are eligible for transit benefits up to \$120.00 per month for specific pre-approved commuter mass transit transportation cost.

## **Transit**

The Barrio Logan Community is well served by Metropolitan Transit System existing transit service that is expected to be maintained and enhanced in the future. The Blue Line which operates with Light Rail Transit (LRT) service is expected to see both increases in frequency and express service. The express service will not stop at every station, as a means to speed travel times. In addition, LRT grade separations are planned at 28<sup>th</sup> Street and at 32<sup>nd</sup> Street. A potential upgrade in service from Bus to Rapid Bus operation is planned for Route 11 which passes through Barrio Logan using Logan Avenue and National Avenue. All these improvements are listed in the “Hybrid constrained scenario” included in SANDAG’s 2050 Regional Transportation Plan approved in December 17<sup>th</sup>, 2010.

The Barrio Logan Community Plan proposes a land use pattern that takes advantage of the existing and future transit network. The plan increases the amount of residential and employment use within walking distance of transit service. This, along with planned increases in transit service, is expected to result in an increase in transit ridership in Barrio Logan. According to travel forecast models, this plan is expected to increase transit use from an existing level of 3.8 percent of the total travel to 3.9 percent for Alternative 1 and 4.1 percent for Alternative 2. This increase in transit use is expected to reduce the amount of automobile travel, which will have positive benefits to air quality and global warming.

## **Truck Routes**

**Figure 7-1** illustrates the recommended truck routes for the community of Barrio Logan. As shown in the figure, the recommended truck routes within the community include Harbor Drive, 28<sup>th</sup> Street, 32<sup>nd</sup> Street and Wabash Avenue. These facilities should provide sufficient truck access from the industrial sites along the Port of San Diego to the Interstate freeway facilities surrounding the community.

**Figure 7-2** illustrates the anticipated truck volumes along the recommended truck routes for Alternative 1 land use scenario. **Figure 7-3** illustrates the anticipated truck volumes along the recommended truck routes for Alternative 2 land use scenario.

Intersection and roadway segment improvements were identified to encourage truck traffic to use the recommended truck routes. The following are the locations where improvements are recommended:

- Prohibition of northbound through movements at the intersection of Main Street/ 26<sup>th</sup> Street/ Schley Street;
- Addition of a second eastbound left-turn lane at the intersection of Harbor Drive and 28<sup>th</sup> Street;
- Addition of a northbound auxiliary lane along 28<sup>th</sup> Street between Harbor Drive and Main Street.
- Striping changes along Main Street between 28<sup>th</sup> Street and 29<sup>th</sup> Street to accommodate turning movement onto 29<sup>th</sup> Street (This improvements should be coordinated with the signalization of Boston Avenue and the I-5 SB on-ramps);
- Signalization of the intersection of Boston Avenue and 29<sup>th</sup> Street/I-5 Southbound on-ramps;
- Caltrans improvements at the Harbor Drive and 32<sup>nd</sup> Street and 32<sup>nd</sup> Street and Wabash Avenue intersections;
- Grade separation of the trolley tracks at the 28<sup>th</sup> Street and Harbor Drive and 32<sup>nd</sup> Street and Harbor Drive intersections (to be completed by SANDAG and part of the 2050 draft RTP);
- Addition of the exclusive northbound right-turn lane and extension of the westbound left-turn lane at the intersection of Harbor Drive and Cesar Chavez Parkway (to be completed by Caltrans); and
- Implementation of context sensitive solutions to discourage truck traffic along Cesar Chavez Parkway (to be completed by Caltrans).

A complete description of the improvements is included in the mitigation sections of Chapter 5 and 6. Conceptual figures showing the recommended improvements are included in **Appendix K**.



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LEGEND

- Barrio Logan Community Plan Area
- City Boundary
- Freeway/Ramp
- SDMTS Trolley and Station
- Park/Open Space
- School
- Port District
- Naval Station San Diego
- Truck Routes
- Truck Weight Limit Prohibition (5 tons)
- Truck Weight Limit Prohibition (1 tons)
- Truck Parking Restriction



Figure 7-1: Recommended Truck Routes





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LEGEND

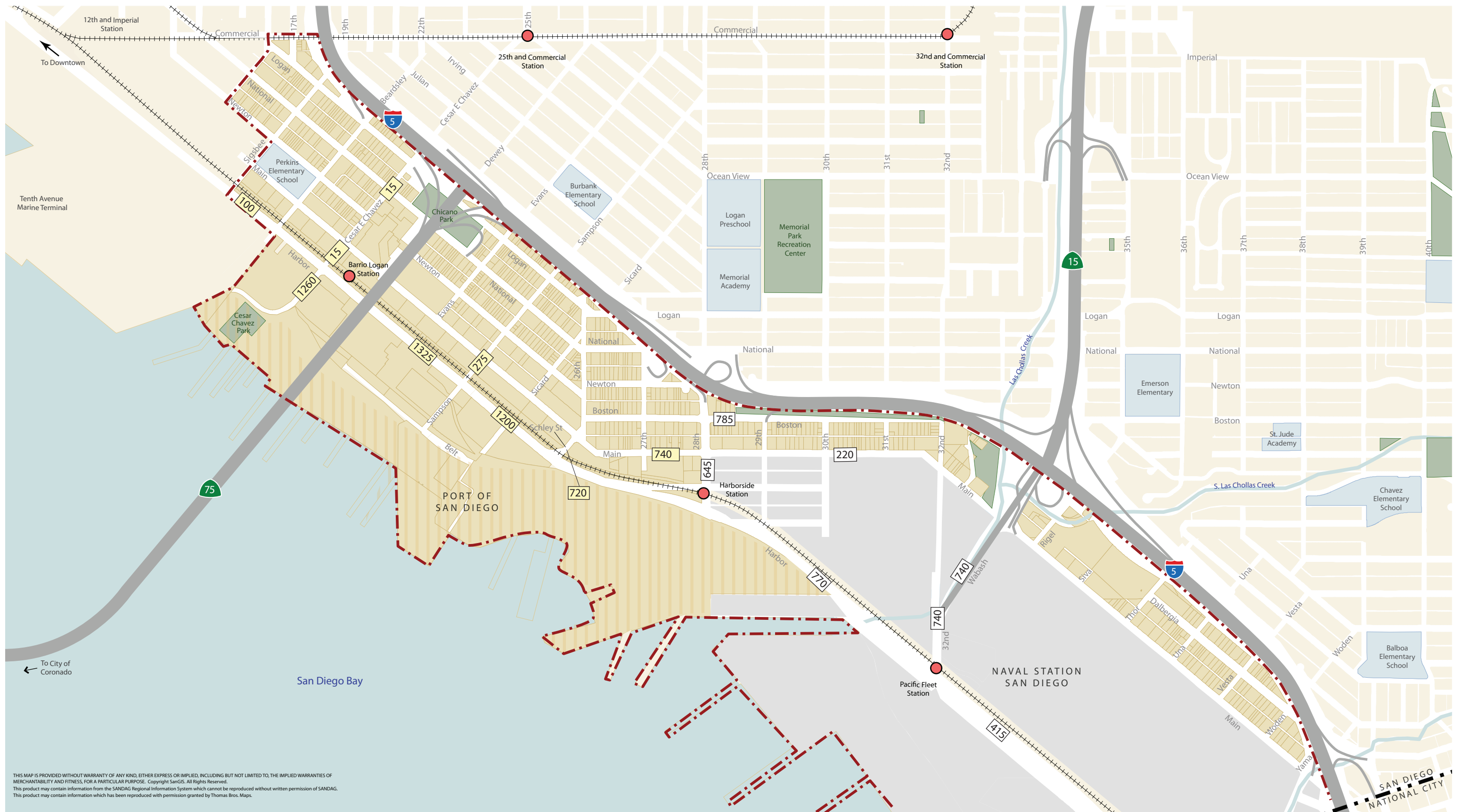
- Barrio Logan Community Plan Area
- Freeway/Ramp
- Park/Open Space
- City Boundary
- SDMTS Trolley and Station
- School
- Port District
- Naval Station San Diego
- XXX - Daily Truck Traffic along roadway segments

500
  1000
  2000 feet

N

Figure 7-2: Anticipated Truck Volumes for Alternative 1 Scenario





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LEGEND

- Barrio Logan Community Plan Area
- Freeway/Ramp
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- School
- Port District
- Naval Station San Diego
- XXX - Daily Truck Traffic along roadway segments

0    500    1000    2000 feet

Figure 7-3: Anticipated Truck Volumes for Alternative 2 Scenario