CITY OF OAKLAND

INDUSTRIAL DISTRICT STRATEGY SUPPORT

PUBLIC INFRASTRUCTURE ASSESSMENT AND RECOMMENDATIONS

WOODLAND-81ST AVENUE | MELROSE-COLISEUM | TIDEWATER

INDUSTRIAL ZONES

October 8, 2008

Prepared For:

Community and
Economic Development Agency
(CEDA)

City of Oakland, CA

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City of Oakland
Industrial District Strategy Support
Public Infrastructure Assessment and Recommendations

I. INTRODUCTION AND FRAMEWORK

The City of Oakland, through its Community and Economic Development Agency (CEDA), seeks to encourage economic growth in selected industrial areas by developing and implementing an Industrial District Strategy. Three focused areas that have been targeted for study at this stage include:

- Woodland-81st Avenue Industrial Zone,
- Melrose-Coliseum Industrial Zone, and
- Tidewater Industrial Zone

These areas comprise industrial areas near the Oakland Coliseum Complex. CEDA has defined the limits of each zone based on existing land uses, roadway networks and circulation (Figures 1.0, 4.1, 4.14 and 4.23).

This Public Infrastructure Assessment and Recommendations Report provides groundwork for implementing the Industrial District Strategy. The report first focuses on determining the ability of the existing infrastructure to support the core growth element of the Industrial District Strategy. Next, gateway and streetscape opportunities to enhance the zones are examined, and order of magnitude estimates for the improvements are provided. Finally, priorities for implementing the improvements are established.

This report serves as the foundation to developing an overall framework for the districts' formation and implementation. Further refinement of the recommendations and priorities will be developed as the plan is implemented.

Figure 1 – Industrial Zone Oakland

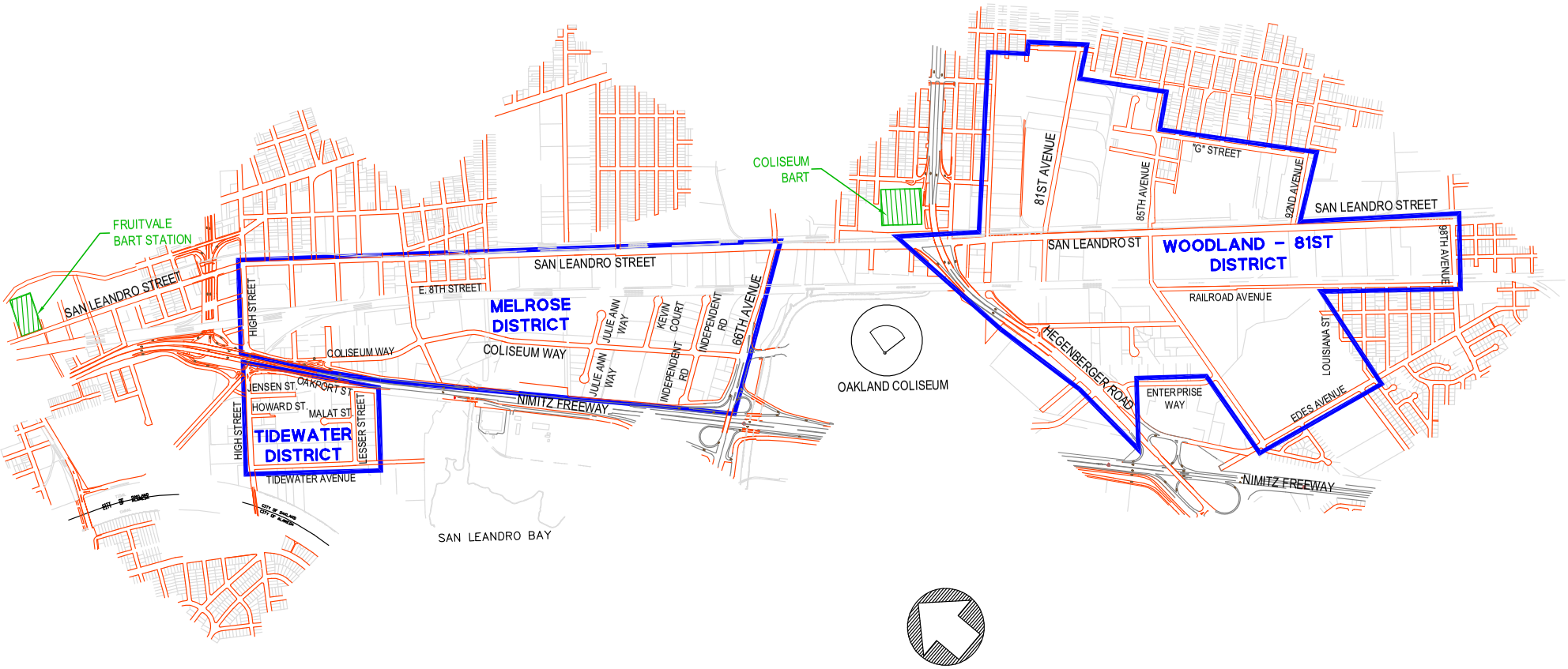

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FIGURE 1:
OAKLAND INDUSTRIAL INDUSTRIAL ZONE EXHIBIT

BKF
Engineers / Surveyors / Planners
2737 NORTH MAIN STREET
SUITE 200
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K:\Eng07\07259\DWG\EXHIBITS\2008-8-28 Zone Location Map\Zone Map.DWG 07 Oct 2008 4:41:54pm wonk

II. APPROACH

In the context described above, BKF's efforts were divided into the following three stages:

Stage 1: Information Gathering

During the information gathering stage, BKF gathered information from internal City sources on the condition of existing utility systems and visited each district to review the roadway circulation, project constraints, and surface street conditions.

Stage 2: Infrastructure Assessment

Once the background information was gathered, BKF assessed the ability of the existing infrastructure to handle existing uses, as well as the potential to meet the demands of any future development. Within each zone, streets were assigned individual levels of importance (through a tiered system). Streetscape improvements and gateway opportunities were identified. Finally, costs associated with each improvement were determined.

Stage 3: Opportunities and Recommendations

Using the infrastructure assessment as a background, opportunities for District improvements were identified and recommended. These include streetscape opportunities (gateway opportunities, standards for the roadway sections, circulation and traffic improvements), and utility upgrades. The recommendations were prioritized based on safety, need, and the tiered street system respectively. Costs associated with each priority were derived from the overall cost estimate.

Within this structure, BKF utilized the following approach.

The infrastructure in each zone was divided into categories for analysis, discussion and recommendations. The infrastructure categories include streetscape and traffic circulation improvements; roadway pavement rehabilitation; street lighting; and sanitary sewer and storm drainage conveyance systems.

Based on the function of each street within both their district zone and within the context of the overall City street network grid, streets were designated as Tier 1, 2, or 3. Tier 1 roadways, the streets of highest precedence, were determined based on their connectivity to the grid and circulation within the district zone.

Once the infrastructure needs were assessed based on their condition, recommendations for improvements were prioritized based first on safety, then by tier classification, and finally by improvement priority.

A. Safety Concerns. Recommended improvements that mitigate existing safety concerns are given the highest priority.

B. Non-Safety Priorities. As indicated above, streets were assigned a "tier" classification based on a combination of existing conditions, the level of public visibility and the assumed through traffic volumes. Each recommended improvement within each street has further been assigned a priority level (Level 1, 2 or 3) to reflect a recommended implementation order in the event that funding for improvements is available incrementally.

In general, the recommended order of improvement implementation is:

Priority 1 – Existing traffic safety issues
Priority 2 – Tier I Streets, Level I – Gateway Modifications
Priority 3 – Tier I Streets, Level II – Storm Drain and Sewer Improvements
Priority 4 – Tier I Streets, Level III – Surface/Streetscape Improvements
Priority 5 – Tier II, Level I ……

Finally, improvement costs were estimated for each recommended improvement. The costs are broken down by the priority levels described above.

III. EXECUTIVE SUMMARY

Though each zone has different issues with respect to its current infrastructure and ability to support new business, both from an aesthetic and a functionality perspective, some conditions and recommendations apply to all three zones under study.

Gateway monumentation at selected locations should be implemented in each of the zones. Improvements could include monument signs, trees, planting patterns, small landscape berms, banners, special street signs, special lights and/or streetscape landscape "bulb outs". Gateways will help "sell" the area as well as notify people that they are entering an identifiable district.

Streetscapes are also important in defining the overall character of each district. A streetscape is the overall appearance or view of a street. All items within and adjacent to the public street right-of-way will contribute to an overall streetscape, including pavement condition and type, striping, sidewalks, curbs, streetlights, traffic signals, landscaping, signage, utility poles, street furniture, street trees, boundary elements and gateway monumentation.

Because they are so inherently related, streetscapes and traffic circulation are discussed together in the report. To that end, existing traffic circulation conditions have been identified that represent potential safety issues. Addressing those conditions should be assigned the highest priority.

Streetscape recommendations that are common to all zones are:

1. Enhance each industrial zone by providing gateway elements at key entry points into the district.
2. Install surface improvements as appropriate to better define and differentiate the travelled way, parking areas, pedestrian and landscaping sections and public versus private property.
3. Improve roadway surface pavement conditions.
4. Install landscaping improvements, including street trees.

5. Implement a landscaping maintenance program to maintain new planting, gateway elements, and to control weeds.
6. Provide guidelines for the development of fencing standards that could apply to fences at the right-of-way boundary as individual parcels are improved.
7. Upgrade and/or install new sidewalks to take advantage of the proximity to BART and businesses.
8. Perform a comprehensive lighting improvement project to improve pedestrian safety.

Prior to implementing streetscape level improvements, projects to repair, replace, or construct new underground utility infrastructure (water, sewer, storm drainage, gas, power, communication, etc.) to support existing and/or new development areas should be completed to avoid damage to any new surface level facilities. Roughly 30% of the storm drainage and sewer conveyance systems are expected to need rehabilitation, based on the City of Oakland Public Works Department's conditions reports and on their experience with systems of similar age within the City.

There are some streetscape conditions and recommendations specific to each zone of study that warrant highlighting.

Woodland-81st Industrial Zone

As safety is the highest priority, existing at-grade railroad crossings near San Leandro Street cause immediate concern. Where side streets intersect the railroad tracks west of San Leandro Street there are multiple signal controlled intersections which could cause a vehicle to be 'caught' on the railroad track in the backup of a red traffic light. The recommended standard solution to solving this condition is to install triggers in the railroad track and traffic signal controller that alert (pre-empt) the traffic signal controller to allow vehicles to move prior to the gates closing. While we understand that the track currently experiences very light and predominantly local rail traffic, it is considered a potential dangerous condition. Should the use intensify, this signal pre-emption would be imperative.

Another priority is to install gateway monumentation at the following locations in the Woodland-81st Industrial Zone: 81st Avenue, Hegenberger Road/San Leandro Street and 98th Avenue/San Leandro Street. It is recommended that the gateway improvements be assigned the highest priority, after safety concerns.

Due to the high volume of traffic and suitability for attracting business, 81st Avenue is a good candidate for a streetscape and pavement rehabilitation project. Particular attention should be given to the railroad crossing near San Leandro Street for the signal pre-emption indicated above, pedestrian circulation, ride quality improvement and streetscape opportunities.

81st Avenue could be improved by implementing a new street section that incorporates striped 14-foot travel lanes in each direction, and a 12-foot two-way left turn lane in the middle. This arrangement would provide well defined travel zones, giving the appearance of narrow street lanes. This will help discourage through-traffic from traveling at excessive speed, while still providing adequate width to accommodate truck turns in and out of adjacent commercial driveways that serve fronting properties.

Melrose-Coliseum Industrial Zone

Coliseum Way and 50th Avenue are the heaviest traveled and most significant streets within this zone.

As a safety hazard, the first priority in the Melrose-Coliseum Industrial Zone relates to a sight-distance issue at the intersection of 50th Avenue and Coliseum Way. A fence on the northwest corner of the intersection impedes drivers' northerly line-of-sight, as they attempt to enter Coliseum Way from eastbound 50th Avenue. The City of Oakland should explore potential resolutions, such as relocating the fence or building a shorter fence, with the property owner to ensure that accepted engineering standards for sight-distance are met.

Gateway monumentation improvements are most appropriate at the medians within the Coliseum Way - Highway 880 and Coliseum Way - 66th Avenue intersections. These areas provide multiple locations for cost-effective zone identification measures and can be improved with limited alterations to the surrounding area.

Additionally, striping changes to Coliseum Way could balance and utilize the street section to meet multiple stakeholders' needs. As an example, the street could be restriped to provide one-lane for through traffic in each direction, one for a 2-way left turn lane and provisions for pedestrians and bicycles. This configuration creates a buffer between higher-speed automobile/truck traffic and pedestrians/bicycles, as well as for cars attempting to enter the roadway from a driveway. In addition, it also provides a safer opportunity for a disabled vehicle to stop along the roadway edge without directly impeding a travel lane.

Another recommended improvement on Coliseum Way is to utilize in-pavement lights at a mid-block pedestrian crossing. This crosswalk would provide a safer environment for pedestrians to cross this busy, straight, long stretch of street that is uncontrolled by traffic signals or stop signs.

Tidewater Industrial Zone

The Tidewater Industrial Zone is comprised of four (4) through-streets; Oakport Street, Lesser Street, Tidewater Avenue (which is not publicly owned right-of-way) and High Street. Within this zone multiple safety concerns regarding existing circulation and traffic operations should be considered for improvement prior to implementing streetscape programs.

The most significant issues in Tidewater are associated with Tidewater Avenue. These include: right-of-way disposition, roadway width, the configuration of its intersection at High Street, the heavy volume of truck traffic, and its use as a staging area by businesses, and linkage to the East Bay Regional Parks District Bay Trail. Once the right of way/easement and trail alignment issues are resolved, roadway and intersection configurations can be determined. These should incorporate a gateway monument near the Tidewater and High intersection. Additionally within the District a gateway element at the intersection of Lesser and Oakport would provide District visibility.

IV. STREETSCAPE AND TRAFFIC CIRCULATION

A streetscape is the overall appearance or view of a street. All items within and adjacent to the public street right-of-way will contribute to an overall streetscape, including pavement condition and type, striping, sidewalks, curbs, streetlights, traffic signals, landscaping, signage, utility poles, street furniture, street trees, boundary elements and gateway monumentation.

Improving streetscapes through a comprehensive and methodical improvement program could substantially enhance the image of each zone for new business or redevelopment. Care must be taken in developing such programs, as they must adhere to existing right-of-way conditions and accommodate existing traffic and pedestrian circulation and parking uses. Because they are so inherently interrelated, streetscape and traffic circulation have been combined in a single section.

Depending on the level of streetscape improvements, pedestrian accessibility may also be improved. All three areas; Woodland-81st Avenue, Melrose-Coliseum and Tidewater Industrial Zone areas are accessible by BART. Figure 4.0 illustrates a 1 mile radius from the Coliseum and Fruitvale BART stations.

Currently, sidewalk conditions vary from street to street in each zone. Improving upon the existing pedestrian routes of travel, along with streetscape improvement, would improve pedestrian accessibility in most situations. It should be noted that installation of curb ramps at intersections will be necessary when improving pedestrian access. Signal modification and signal timing may also be required at certain intersections to incorporate improved pedestrian accessibility.

For all study areas, gateway monumentation at selected locations should be implemented as the highest priority non-safety related improvement and could include monument signs, trees, planting patterns, small landscape berms, banners, special street signs, special lights and/or streetscape landscape "bulb outs". These gateway areas will help "sell" the area as well as notify people that they are entering an identifiable district.

The existing streetscapes in all of the zones differ, however many lack visual definition between traveled ways, pedestrian routes, parking areas, and private properties. In general, BKF recommends that all streets be improved as necessary to provide these visual definitions. Strategically placed curbs, and the development of right-of-way fencing standards, would create visual continuity.

Within the following sections, a palette of potential street sections and plans, as well as gateway monumentation opportunities, has been provided for each of the three zones.

Another streetscape improvement that was considered but not recommended, due to prohibitive costs, was relocating all of the overhead utilities into underground conduits. At approximately $1,000 per lineal foot, the cost would be roughly equal to the combined cost of all of the streetscape improvements that have been recommended. Further, the overhead utility lines are not out of character in an industrial zone.

Woodland-81st Industrial Zone

The highest priority should be placed on projects that address existing safety concerns. In the Woodland-81st Avenue Industrial Zone, the Western Pacific Railroad line runs adjacent to San Leandro Street on its east side. There are multiple signal controlled intersections where side streets intersect these tracks just prior to intersecting San Leandro Street. It should be confirmed that these signals are pre-empted by railroad traffic, to eliminate the risk that a vehicle gets caught at a red light straddling a track when a train is coming. We understand that the track currently experiences very light and predominantly only local rail traffic, but should the use ever be intensified, this pre-emption would be critical.

Figure 4.0: Pedestrian Paths from BART Station

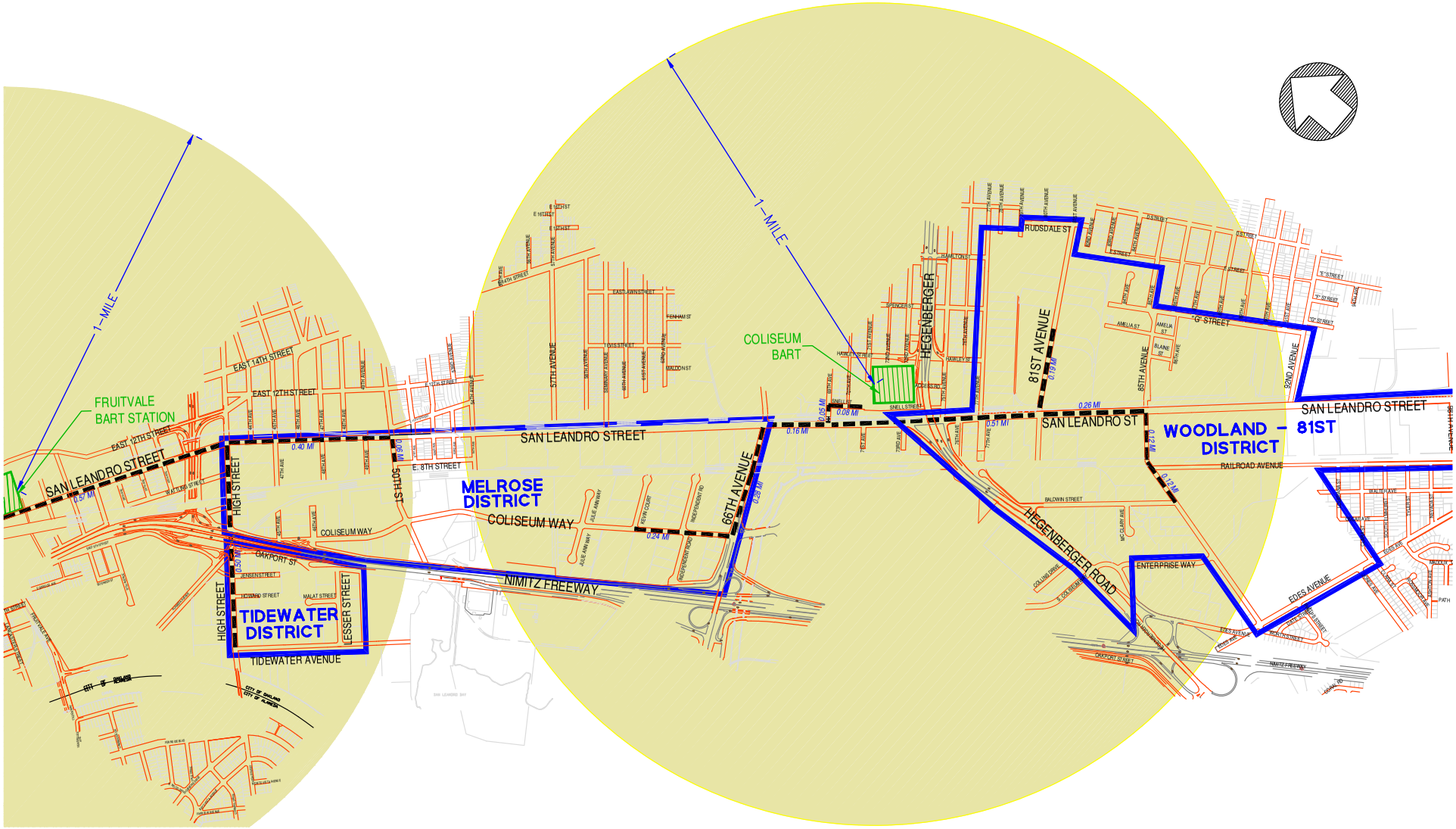

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FIGURE 4.0 - OAKLAND INDUSTRIAL
PEDESTRIAN PATHS FROM BART STATIONS

BKF
2737 NORTH MAIN STREET
SUITE 200
WALNUT CREEK, CA 94596
925-940-2200
925-940-2299 (FAX)

Figure 4.1: Woodland-81st Project Priority Plan

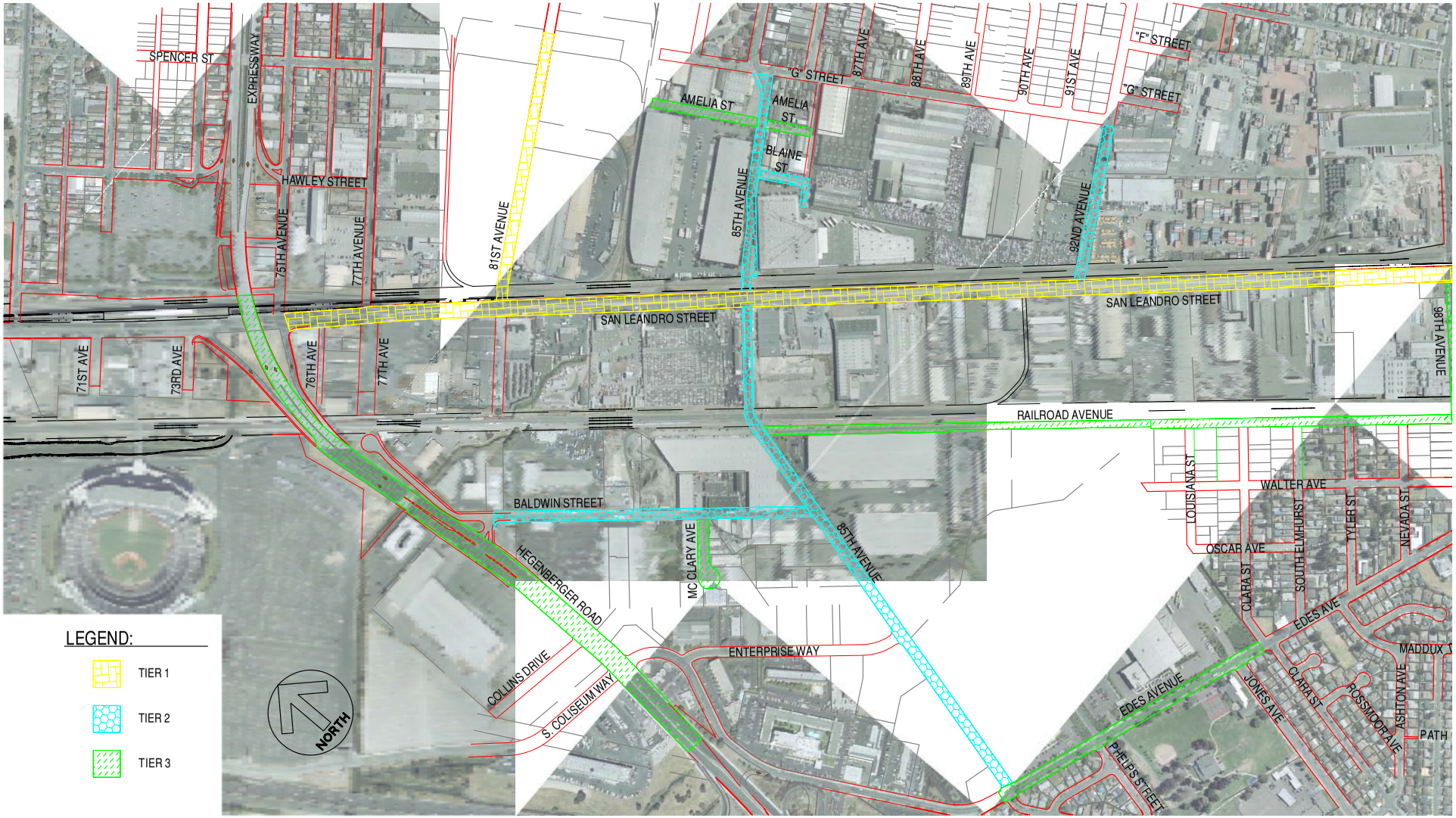

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FIGURE 4.1: WOODLAND - 81ST AVENUE INDUSTRIAL ZONE
PROJECT PRIORITY EXHIBIT

BKF
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The first non-safety-driven step in improving the streetscape of the Woodland-81st Industrial Zone involves identifying Gateway Entry Opportunities. The orientation of the Woodland-81st Industrial Zone presents multiple locations for creating a sense of arrival to the zone. Some of these Gateway locations could have modest monumentation, while more heavily traveled streets, such as San Leandro Street and Hegenberger Road, could exhibit more significant monumentation or design features designating the area.

A Tier 1 Gateway Modification is located at 81st Avenue, Hegenberger Road/San Leandro Street and 98th Avenue/San Leandro Street (Figures 4.2, 4.3, & 4.4).

The 81st Avenue Gateway Modification also could implement a traffic calming measure. A speed bump with "bulb outs" at the limit of the existing residential development would help deter vehicular traffic from or to the adjacent residential neighborhoods from utilizing 81st Avenue as a short cut (Figure 4.2).

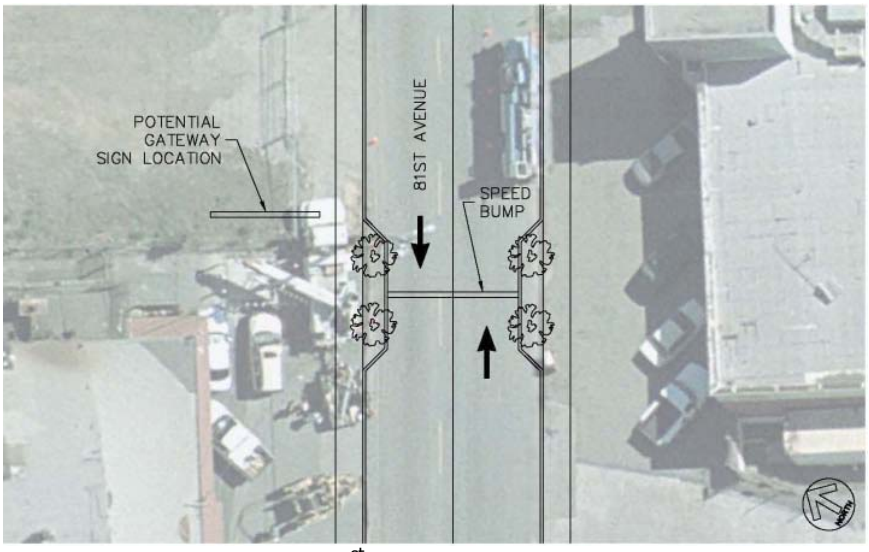


Figure 4.2: 81st Avenue Gateway Opportunity

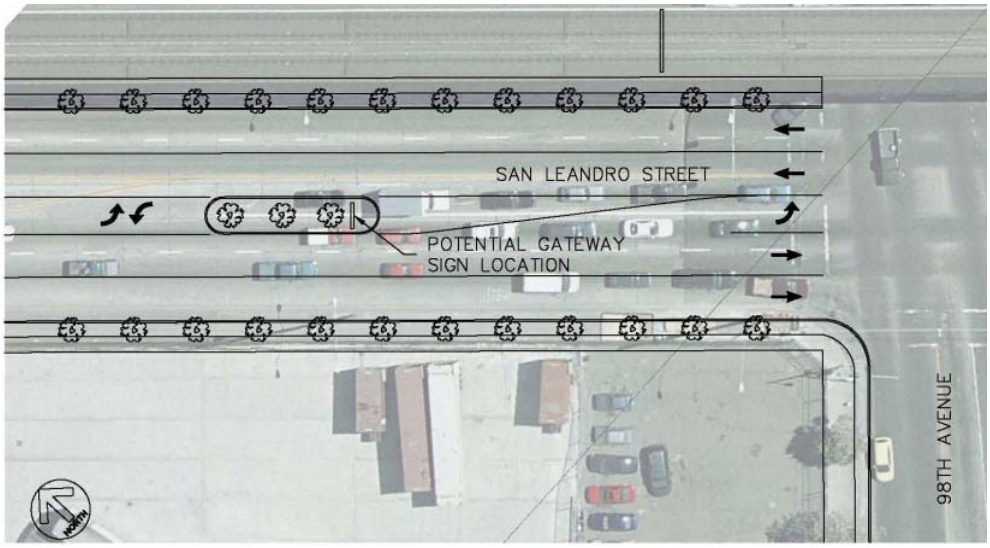


Figure 4.3: 98th and San Leandro Gateway Opportunity

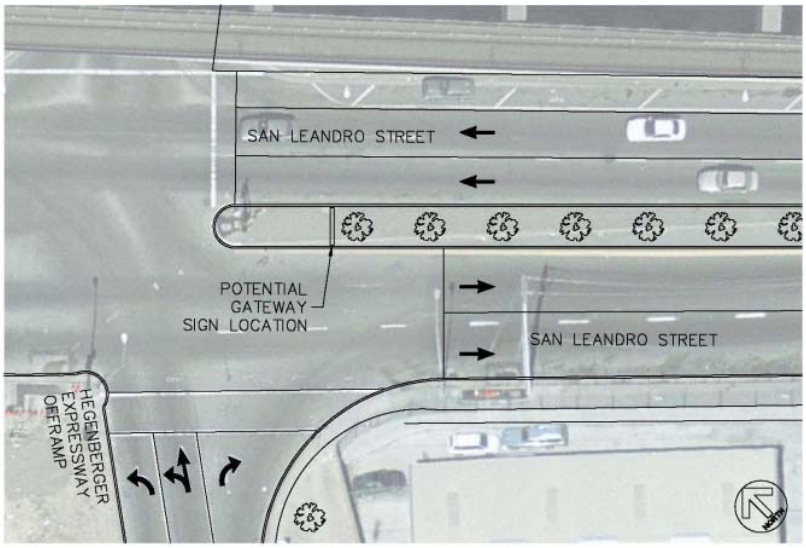


Figure 4.4: Hegenberger Road East off ramp/San Leandro Street Gateway Opportunity

The following figures show other potential locations for Gateway Opportunities as well as a wide variety of Gateway Design Features:

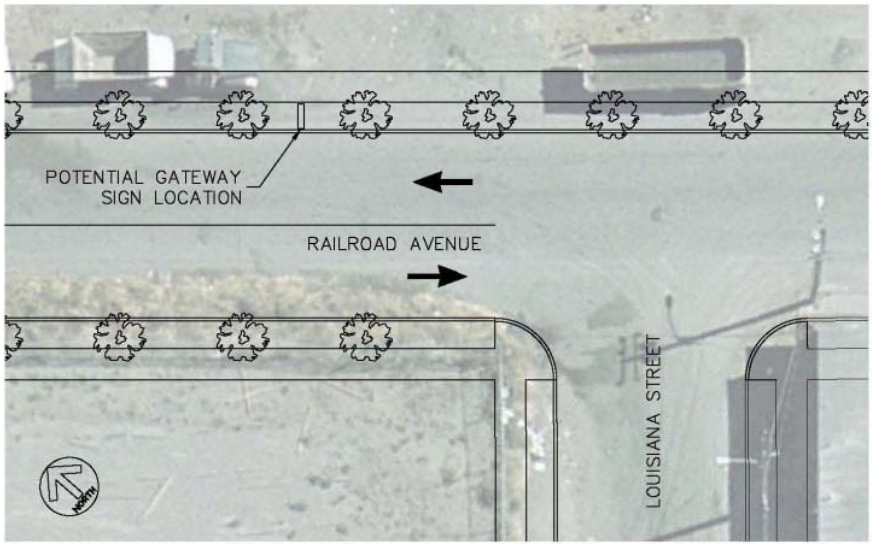


Figure 4.5: Railroad and Louisiana Gateway Opportunity

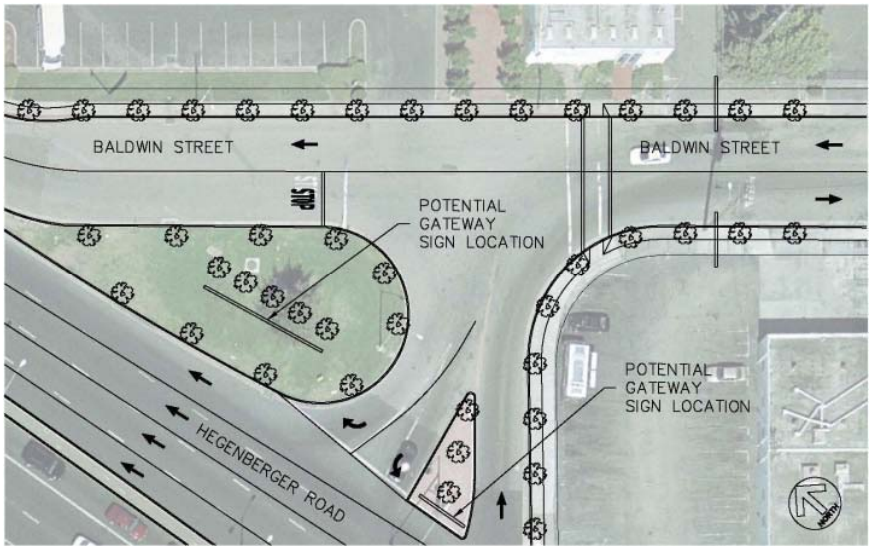


Figure 4.6: Hegenberger Road/Baldwin Street Gateway Opportunity

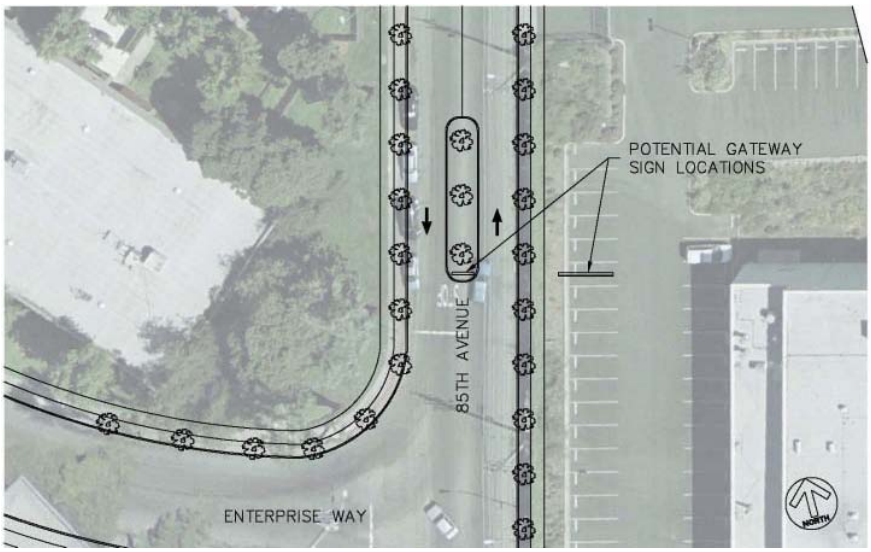


Figure 4.7: 85th Avenue and Enterprise Way Gateway Opportunity

The Woodland-81st Avenue Industrial Zone perimeter is comprised of its major arterials; San Leandro Street and Hegenberger Road. Hegenberger Road is already well established with limited or no streetscape improvements necessary.

San Leandro Street could be improved by adding street trees and sidewalk or rock ground cover (i.e. crushed rock, decomposed granite). Currently, the railroad tracks and condition of the pavement make the street unattractive. Clearing out existing weeds and unwanted vegetation would, in itself, be significant. San Leandro Street improvements should be a second priority to installation of Gateway Design Features. The following figures show a potential streetscape option for San Leandro Street's 88-foot right-of-way.

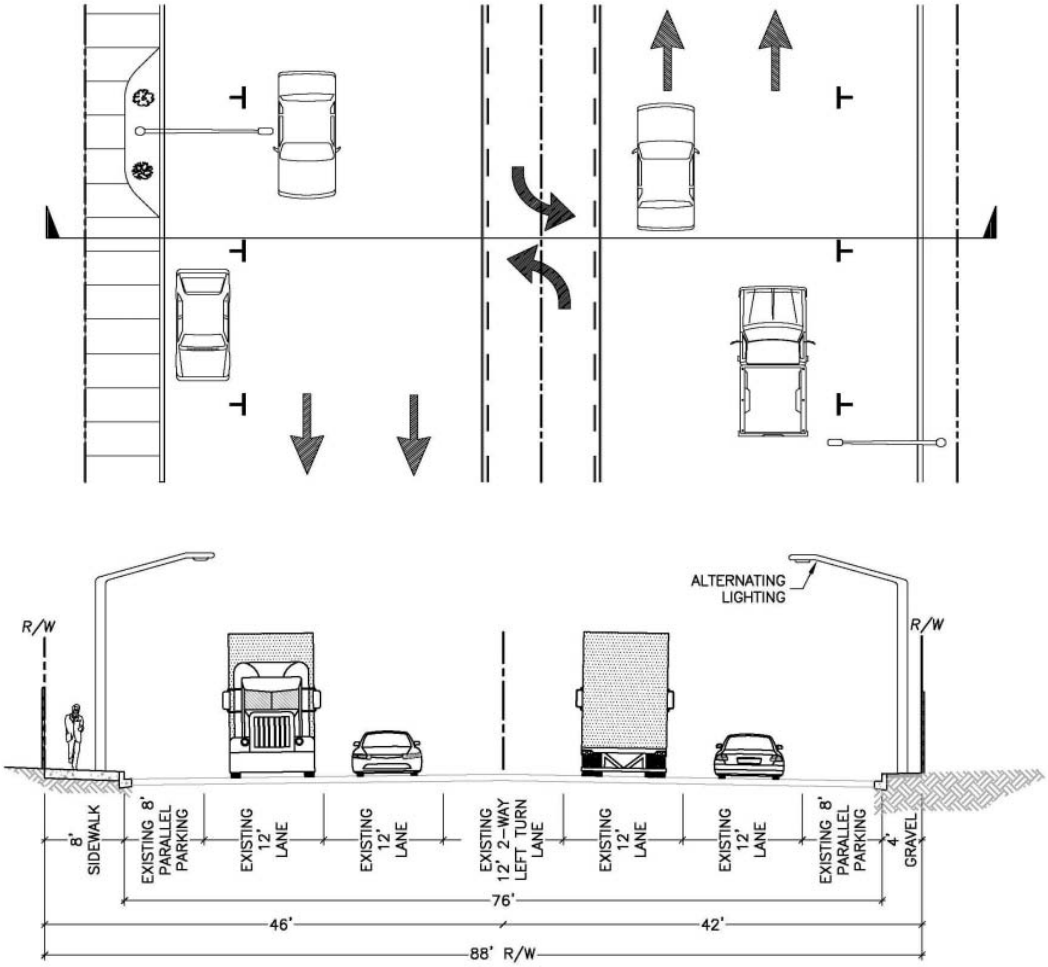


Figure 4.8: Potential San Leandro Street 88-foot Plan/Cross-Section

Another streetscape priority would be improvements along 81st Avenue, as the street receives significant volumes of local and through-traffic, and has sections that have already been updated, (i.e. the frontage of Broadway Mechanical - 873 81st Avenue). 81st Avenue feeds into San Leandro Street at the northwestern portion of the Woodland-81st Avenue Industrial Zone.

81st Avenue could be improved by implementing a new street section (Figure 4.9) that incorporates 14-foot travel lanes in each direction, and a 12-foot two-way left turn lane in the middle. This arrangement would give the appearance of narrow street lanes, which should discourage through-traffic from traveling at excessive speed, while still providing adequate width to accommodate truck turns in and out of adjacent commercial driveways that serve fronting properties.

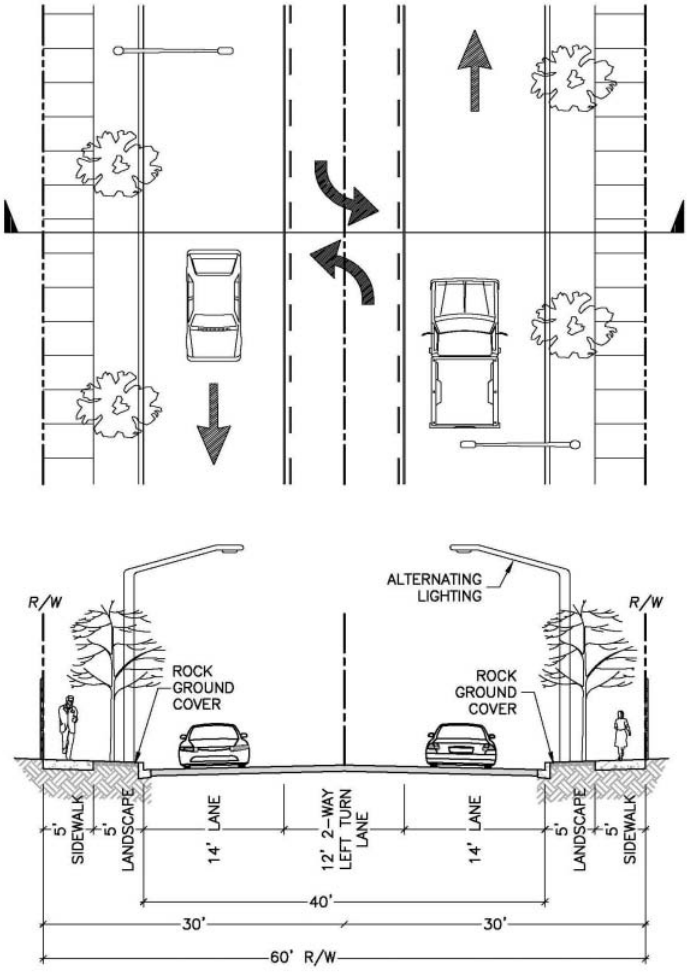


Figure 4.9: Potential 81st Avenue 60-foot Plan/Cross-Section

There is a slight jog in the existing road improvements that is not evident in the Assessor's maps, which graphically depict the street right-of-way. A more detailed right-of-way survey should be performed to verify the location of the existing improvements and their relationship to the actual right-of-way line before finalizing a streetscape program.

For other second and third-priority street improvements, a typical 60-foot ROW section including parallel parking and sidewalks is recommended.

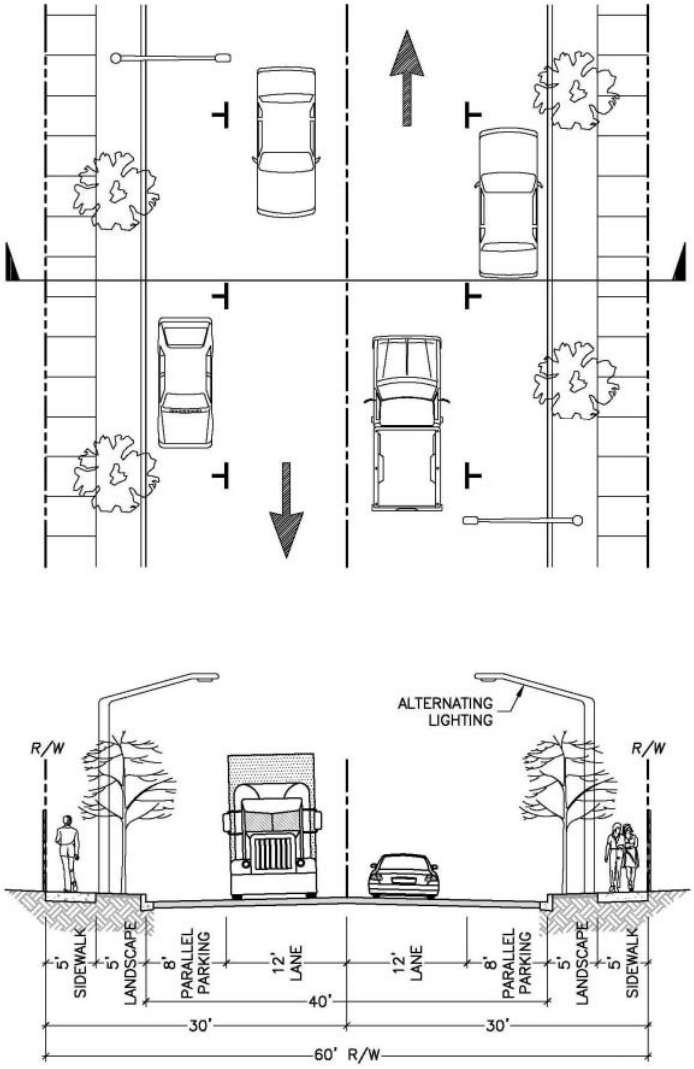
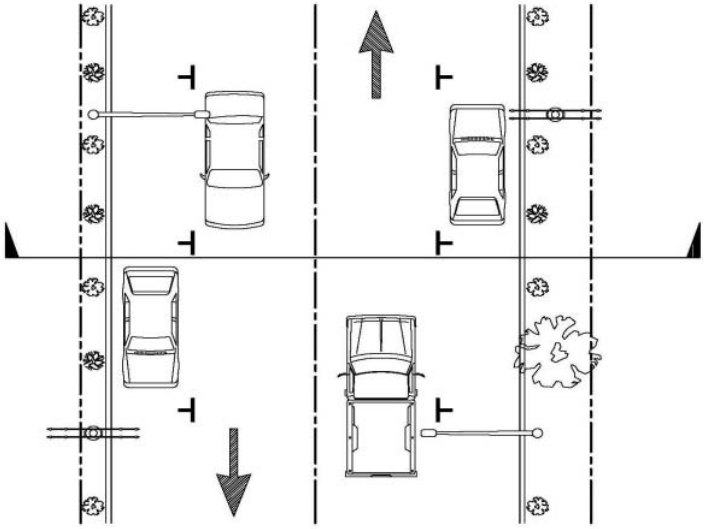


Figure 4.10: Potential 60-foot Plan/Cross-Section



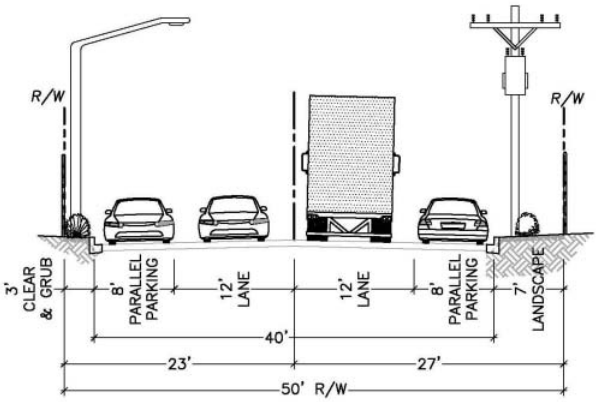
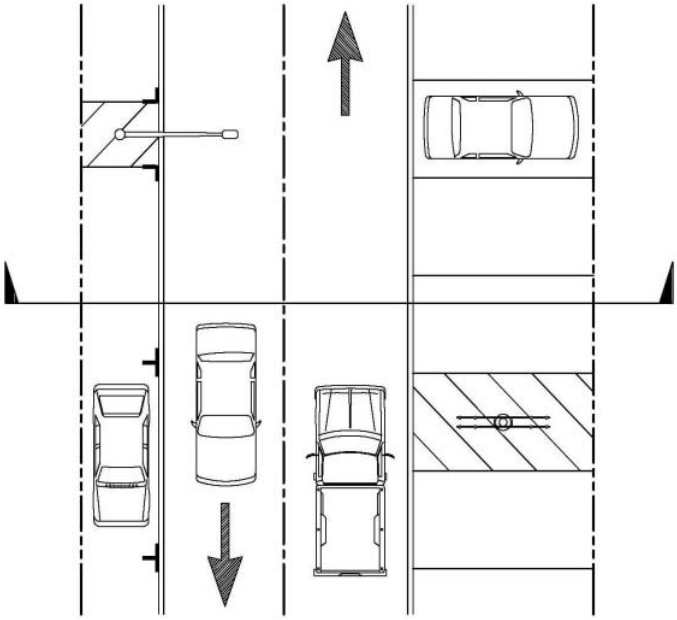


Figure 4.11: Potential Amelia (N. of 85th Avenue) 50-foot Plan/Cross-Section



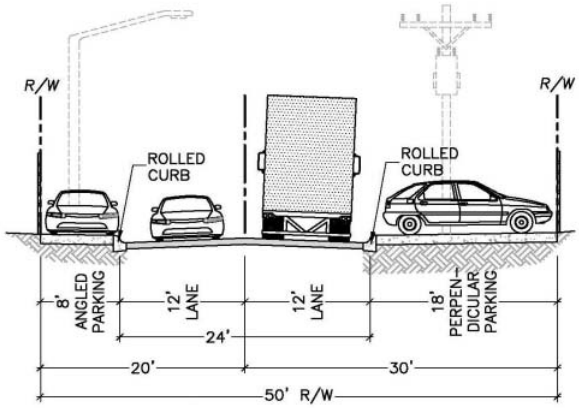


Figure 4.12: Potential Amelia (S. of 85th Avenue) 50-foot Plan/Cross-Section

Melrose-Coliseum Industrial Zone

The sight-distance at the intersection of 50th Avenue and Coliseum Way is a safety hazard and is, therefore, the first priority in the Melrose-Coliseum Industrial Zone. A fence on the northwest corner of the intersection is impeding the northerly line-of-sight, as drivers attempt to enter Coliseum Way from eastbound 50th Avenue (Figure 4.13). Within new development areas, it is common in curved portions of a street near an intersection to provide a "sight-distance easement" which would restrict the construction of any fencing or installation of landscaping which might obstruct the view of drivers entering the flow of traffic, or approaching the intersection. BKF recommends that the City of Oakland explore potential resolutions, such as relocating the fence or building a shorter fence, with the property owner to ensure that accepted transportation-engineering standards for sight-distance are met.

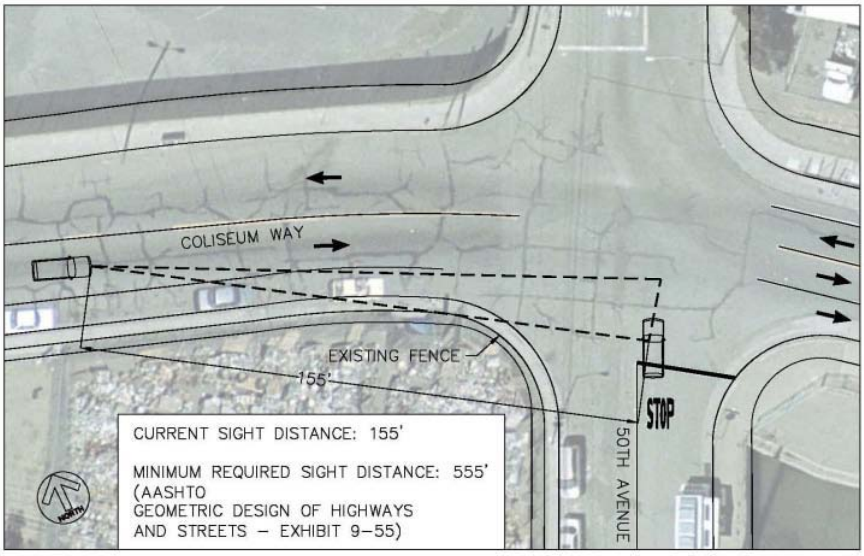


Figure 4.13: Coliseum Way Sight Distance

To begin to develop an overall streetscape and circulation program for the Melrose-Coliseum District, we have focused separately on the following sub-sections of the District:

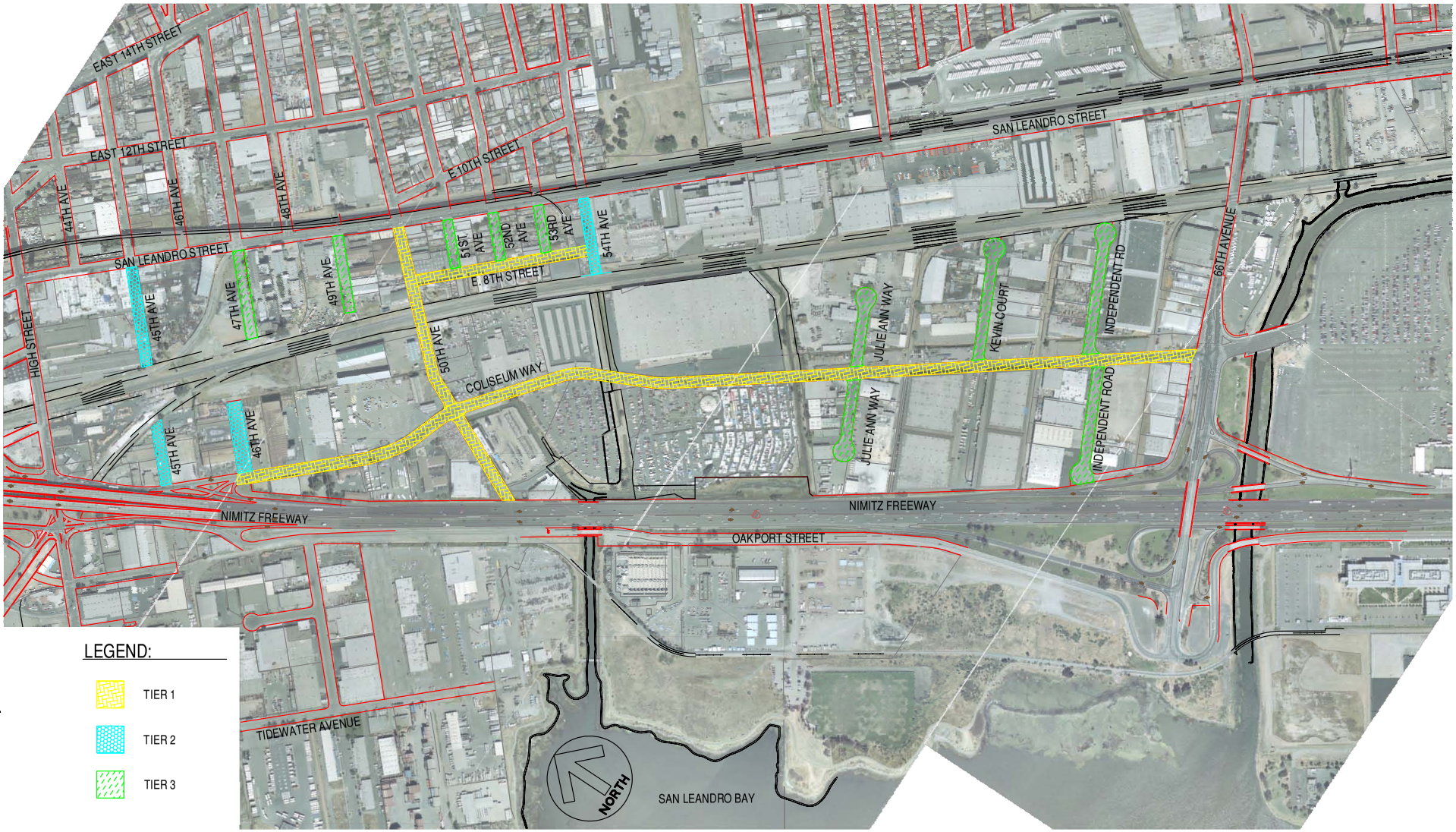
Coliseum Way (Between 66th and 50th Avenues)

Coliseum Way carries heavy auto and truck volumes through the center of the district from north to south. It accommodates four lanes of traffic (two in each direction) in a 40-foot-wide street section. The overall right-of-way is 60-feet wide. There is approximately and additional 10-feet beyond the back of curb and within the right-of-way line on each side of the street. Some segments along this stretch have sidewalks in this 10-foot width, while other segments do not.

Because the road is straight with no traffic control, BKF estimates that average speeds are likely close to 50-mph. There are potentially several issues with the existing street configuration that should be explored further:

- Ten-foot travel-lane widths would not be recommended for multiple-lane, high-speed, high truck-volume roadways, under current traffic engineering practices.
- Multiple-lane roadways, with left turn opportunities, under current traffic engineering practices would include dedicated left turn lanes. In this case, because there are several left turn opportunities for both northbound and southbound traffic, a continuous two-way left turn lane would be provided.
- There is no area of refuge for disabled vehicles.

Figure 4.14: Melrose - Coliseum Project Priority Exhibit



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ALAMEDA COUNTY
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FIGURE 4.14: MELROSE - COLISEUM INDUSTRIAL ZONE
PROJECT PRIORITY EXHIBIT

BKF
2737 NORTH MAIN STREET
SUITE 200
WALNUT CREEK, CA 94596
925-940-2200
925-940-2299 (FAX)

Since the existing right-of-way along Coliseum Way is only 60-feet wide, the options for improvement are limited. Coliseum Way should be considered a Tier 1 street and BKF recommends a traffic study be conducted to determine whether the peak-hour volumes warrant two lanes in each direction. If they do not, the street could be restriped to accommodate a single lane in each direction with a two-way left turn lane. The reduction of the lane width would also slow down traffic along Coliseum Way and would make the street safer for pedestrian crossing. During events at the Coliseum, the two-way left turn lane could be used for an additional dedicated in-bound or out-bound lane as the need warrants. This could be controlled with overhead electronic signage.

As Coliseum Way also carries significant pedestrian traffic to and from the Coliseum, BART and the local businesses, sidewalks and street trees are recommended in order to improve the streetscape appearance and level of safety. Due to the high volume of pedestrian traffic, and the estimated automobile speeds, BKF recommends that a crosswalk with user-activated in-pavement lights be considered.

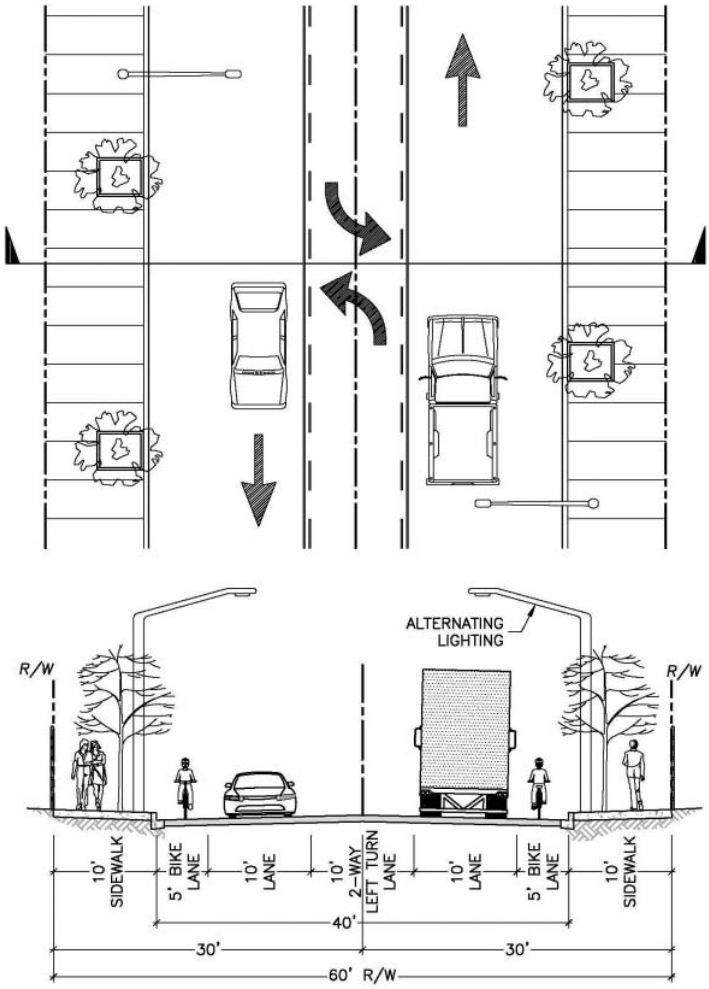

Figure 4.15: Potential Coliseum Way 60-foot Plan/Cross-Section with Two Way Left Turn Lane

To improve the streetscape of Coliseum Way, a high priority should be clearing the existing area of debris and weeds, and then adding sidewalk or a rock ground cover (i.e. crushed rock, decomposed granite) or street trees. This subtle improvement would give the area a more uniform appearance while maintaining the functionality as the main arterial for the Melrose – Coliseum

Industrial District. The following figures show the existing street section with street trees. Another improvement would be removal of the abandoned rail spurs that cross Coliseum Way. The removal of the unused rail will improve ride quality and reduce the amount of future pavement-maintenance, in and around these areas.

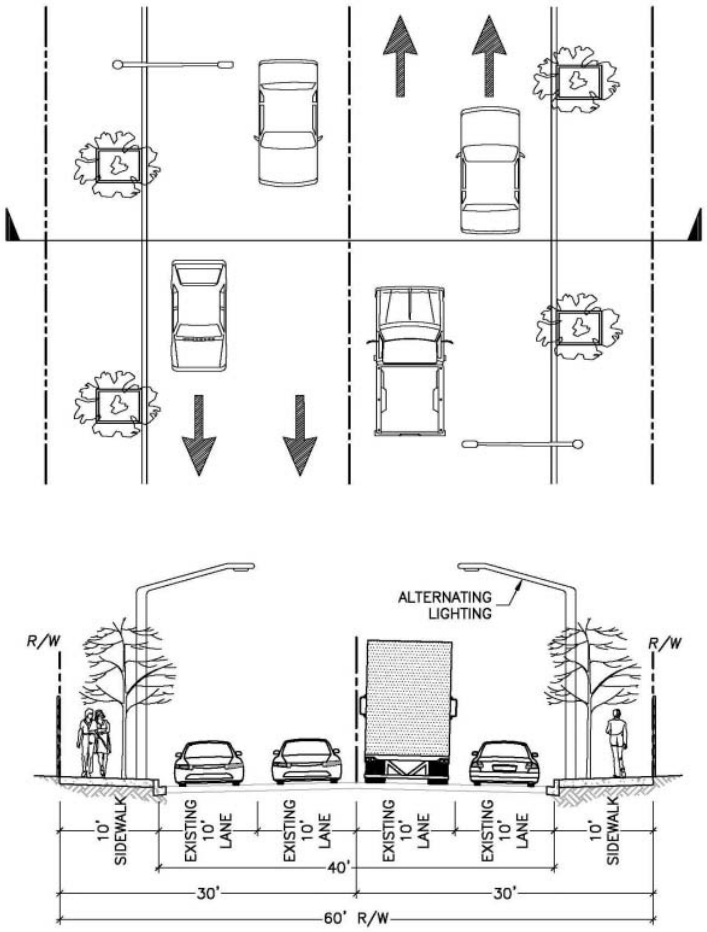

Figure 4.16: Potential Coliseum 60-foot Plan/Cross-Section

50th Avenue

50th Avenue should also be considered a Tier 1 Street because it carries heavy traffic. A proposed section, incorporating angled parking and sidewalk, has been illustrated for 50th Avenue in Figure 3.16 below. Implementation of this section would allow the existing businesses to continue to utilize the street as they currently are, while providing a more definitive separation between the traveled way and the parking spaces. It also would provide some separation from traffic for pedestrians.

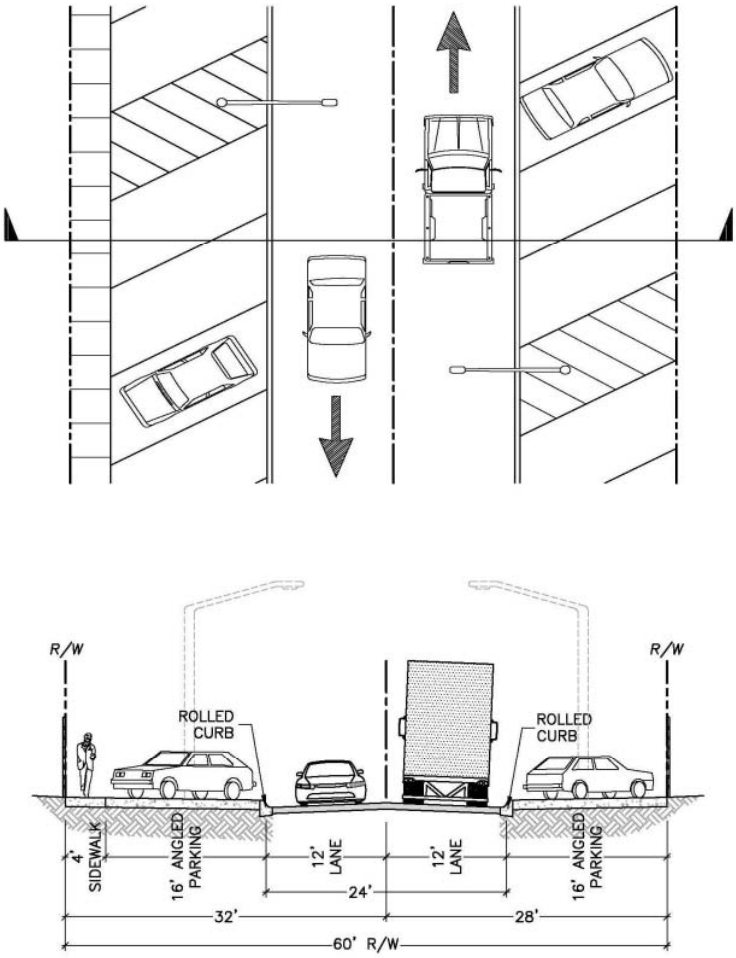

Figure 4.17: Potential 50th Avenue / E. 8th - 60-foot Plan 1/Cross-Section 1

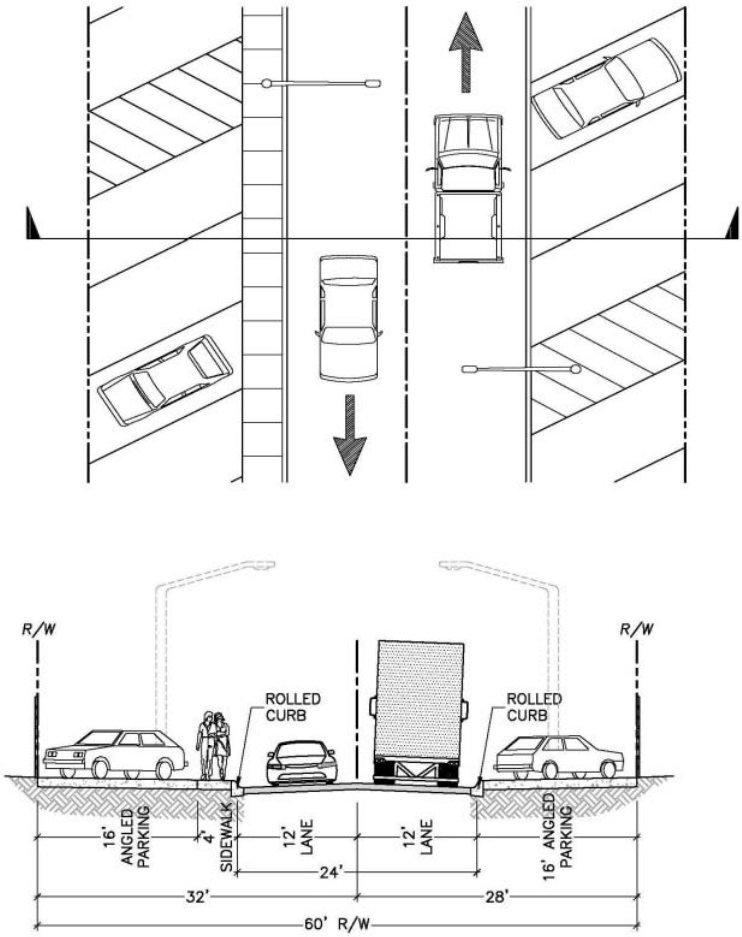

Figure 4.18: Potential 50th Avenue / E. 8th – 60-foot Plan2 /Cross-Section 2

54th Avenue is another street that would benefit from a new section which maintains the existing street parking and provides improved access for pedestrians. Given the high use of 8th Street, 54th Avenue receives passing traffic on and onto San Leandro Street from 8th Street. The following figures show potential street sections which would provide parking and pedestrian access for surrounding business.

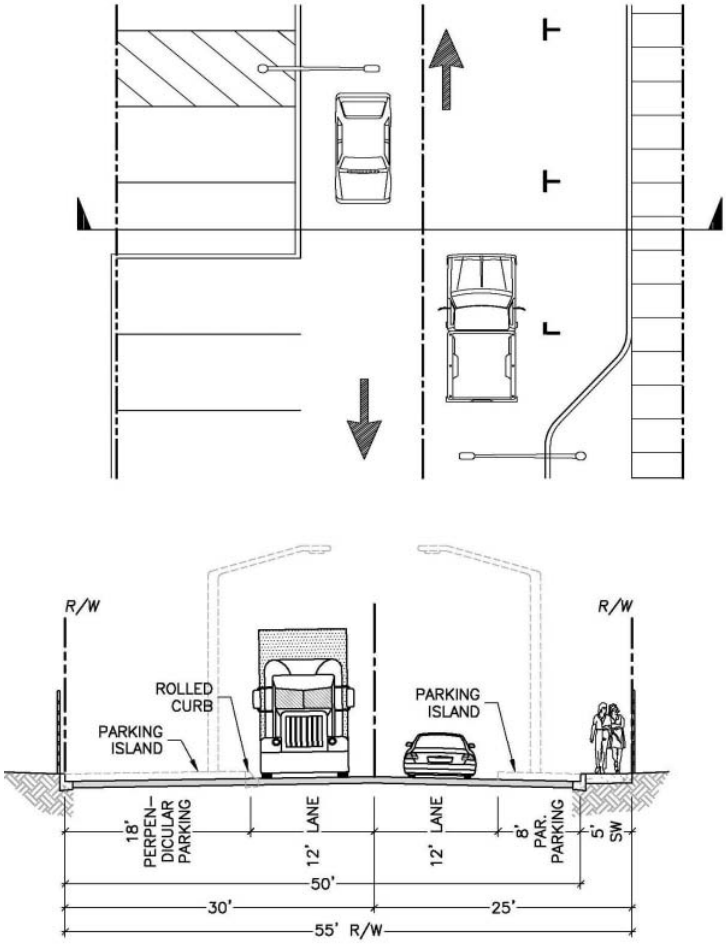

Figure 4.19: Potential 54th Avenue 55' Plan/Cross-Section

Tier 3 street improvements include cul-de-sacs improvements within the Melrose Coliseum Industrial Zone. A majority of the cul-de-sacs in this zone branch directly off of Coliseum way and have a typical 60-foot right-of-way. These should be improved on a case-by-case basis due to numerous driveway alignments, and a variety of land uses. A typical recommended section for a 60-foot right-of-way will provide uniformity to the zone and is illustrated in Figure 4.10.

Gateway Opportunities

The following figures, Figure 4.20 and Figure 4.21 and 4.22 respectively, illustrate the gateway opportunities for the Melrose – Coliseum Industrial Zone. The medians within the Coliseum Way - Highway 880 and Coliseum Way - 66th Avenue intersections provide multiple locations for cost-effective zone identification. These locations can be improved with limited alterations to the surrounding area, so the improvements should be considered feasible even if only minimal improvements are implemented.

50th Avenue at San Leandro Street carries a significant volume of traffic into the zone as well, so could perhaps be a good candidate for a gateway improvement. Because the street right-of-way of 50th Avenue is so narrow, and because of the density of buildings in the area, monumentation options are limited, but it may be possible to install some simple banners.

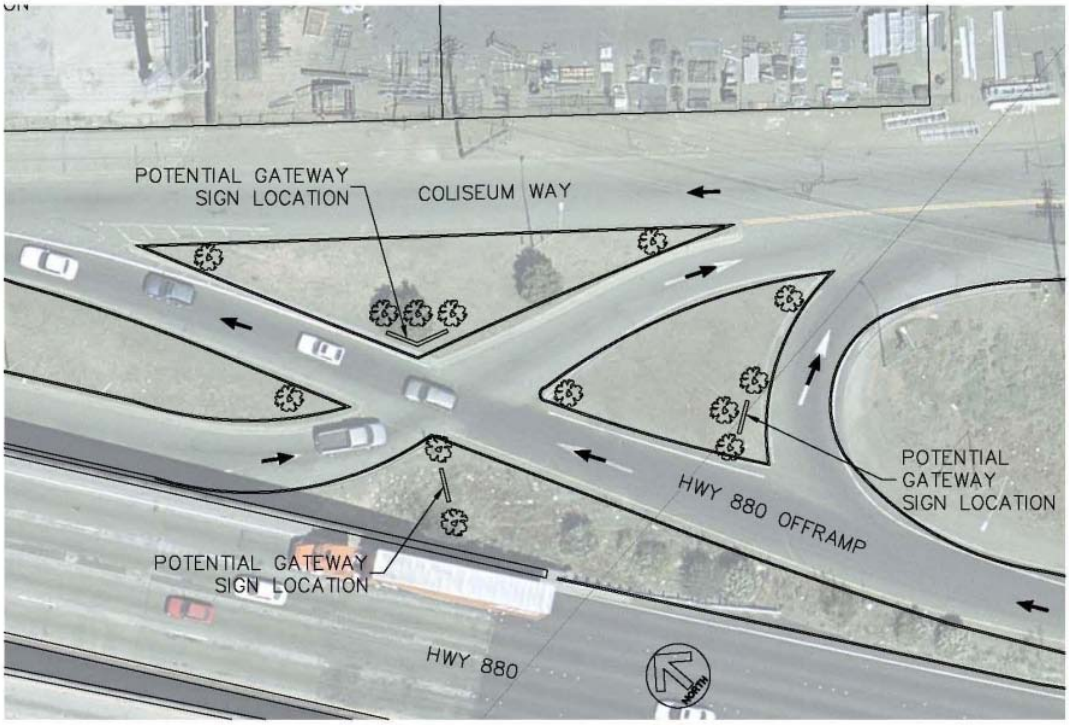

Figure 4.20: Coliseum Way - Highway 880 Gateway Opportunity

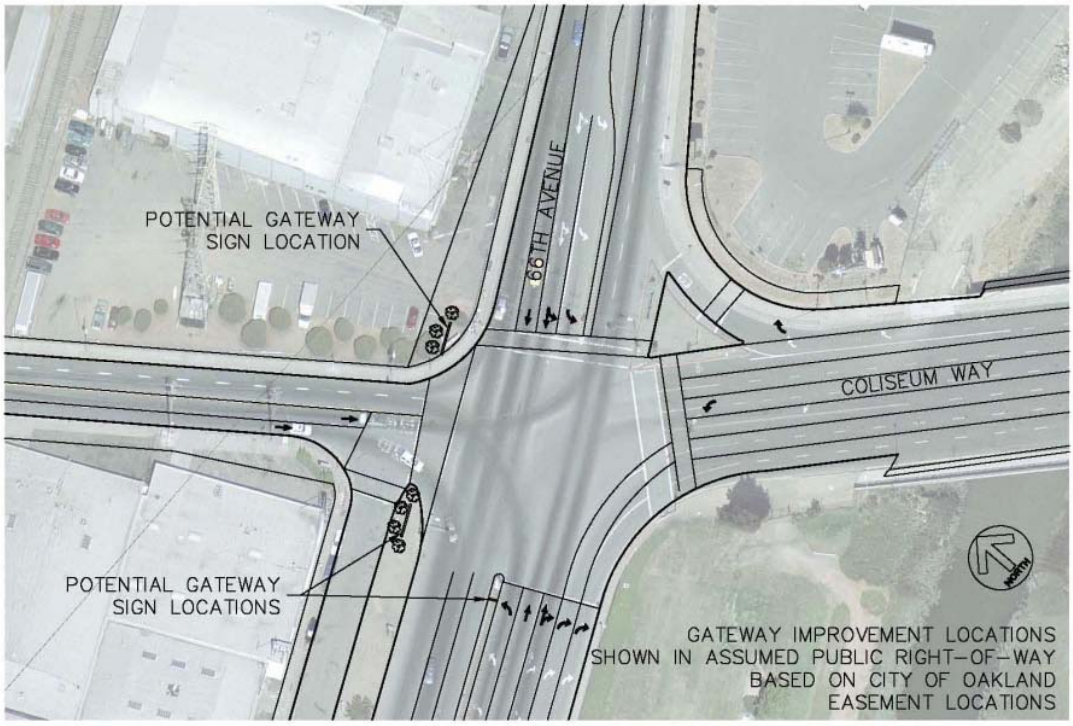

Figure 4.21: Coliseum Way - 66th Avenue Gateway Opportunity

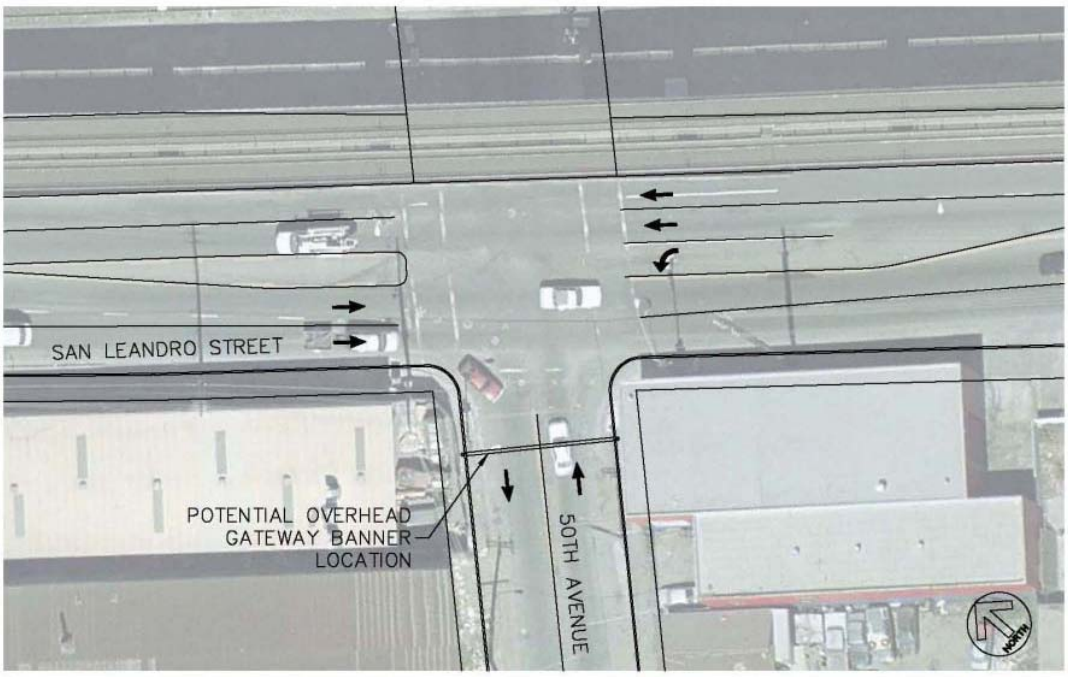

Figure 4.22: San Leandro - 50th Avenue Gateway Opportunity

Tidewater Industrial Zone

The Tidewater Industrial Zone is comprised of four (4) through-streets; Oakport Street, Lesser Street, Tidewater Avenue and High Street. Within this zone are multiple existing circulation and traffic operation issues and conflicts that should be considered for improvement before any streetscape program is finalized. Itemized review of particular issues is as follows:

High Street and Tidewater Avenue Intersection

Because High Street is one of only five (5) access roads leading to the heavily-populated island city of Alameda, it carries heavy traffic volumes throughout the day, but particularly in the eastbound direction during the morning commute and in the westbound direction during the evening commute. Tidewater Avenue, which, in affect, functions as a private driveway, as it is not a public street, serves multiple properties and carries significant truck traffic, in both the inbound (south) and outbound (north) directions. Truck trips are predominantly generated by the DeSilva Gates Construction and Hanson Aggregates; businesses that utilize the Alameda Estuary to bring barged aggregate materials to their sites. The most significant conflict pertains to the outbound (north) trucks on Tidewater that turn right (east) onto High Street. Due to the small curb return radius at the southeast corner of the intersection, trucks must wait until westbound lanes are clear before they can make the turn. BKF recommends that the corner be reconfigured in such a way as to allow trucks to make this turn without entering westbound lanes. This should be a first-level priority. See Appendix J for a diagrammatic representation of the existing condition and several proposed configurations that could alleviate the issue. BKF notes that the new configuration would encumber existing Restaurant Depot property at the southeast corner of Tidewater Avenue and High Street. Either an easement would need to be granted, or the property would need to be deeded to the City in fee to put in the improvements.

BKF notes that the City of Alameda has requested that the City of Oakland consider a signage program to discourage truck traffic that does not have an Alameda destination from entering the High Street Bridge. Potentially, a sign could be installed across High Street that indicates a left turn arrow with the text "Not A Truck Route".

Tidewater Avenue Right-of-Way Disposition

Another issue is that Tidewater Avenue is not currently, per the County Tax Assessor's maps, a public street. Rather, it is a series of privately owned, separate-fee parcels that are encumbered by a 50-foot wide, non-exclusive driveway easement that the businesses in the area have been using for decades for the purposes of ingress, egress and truck staging. The City can either acquire the necessary right-of-way to construct roadway and streetscape improvements, or treat the area as a common driveway and allow the existing property owners to maintain it at their discretion.

Parcels on Tidewater Avenue are defined with "Tidewater Avenue" addresses, even though Tidewater Avenue is not a public street. If the "street" is converted to a private, common driveway, the Tidewater Avenue addresses would have to be re-evaluated, particularly by the Oakland emergency services departments.

Additionally, the East Bay Regional Parks Zone (EBRPD) has an interest in constructing a link of their Bay Trail system on (or adjacent to) the Tidewater Avenue right-of-way. It is, as of yet, undetermined what width of dedicated trail EBRPD will require. Potentially, a widened sidewalk along the east side of Tidewater Avenue could accommodate trail users.

Ultimately, the City must decide what uses the street will accommodate and then decide what the final disposition of the street right-of-way will be, how wide it will be and what improvements need to be made. BKF has provided options for 50-foot, 60-foot and 65-foot right-of-way widths, as well as an option for leaving the area private and installing a wide commercial driveway at High Street (See Figures 4.23-4.33).

The following items should be considered as discussions move forward toward a final resolution:

- Improvements such as public, dedicated sidewalks that would create any restrictions on truck movements compared to the existing condition will be resisted by the existing business users.
- Hanson Aggregates and DeSilva Gates Construction properties both have existing buildings that appear to be immediately adjacent to the existing common driveway easement (this would need to be confirmed by a field survey). Any widening of the right-of-way to the west would require demolition of at least portions of these buildings.
- On the east side of the driveway easement, Restaurant Depot has started construction on a new wholesale grocery store facility. BKF understands that their building permit is in place and their permitted plans include a parking lot adjacent to the easement line.

The following figures show the priority of streets and potential streetscape improvements that could be implemented for the Tidewater Industrial Zone.

Figure 4.23: Tidewater Project Priority Exhibit

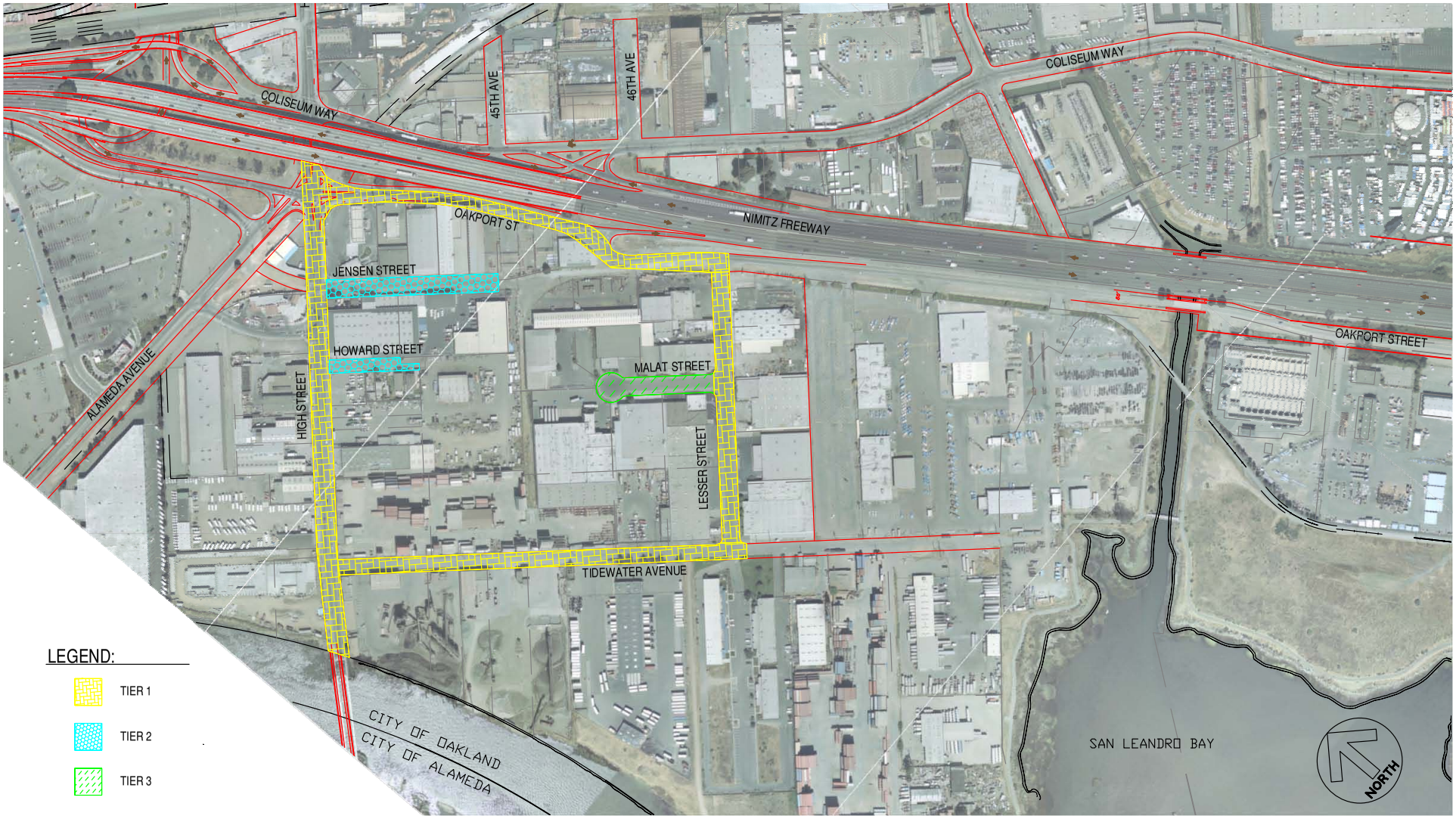

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FIGURE 4.23: TIDEWATER INDUSTRIAL ZONE
PROJECT PRIORITY EXHIBIT

BKF
2737 NORTH MAIN STREET
SUITE 200
WALNUT CREEK, CA 94596
925-940-2200
925-940-2299 (FAX)

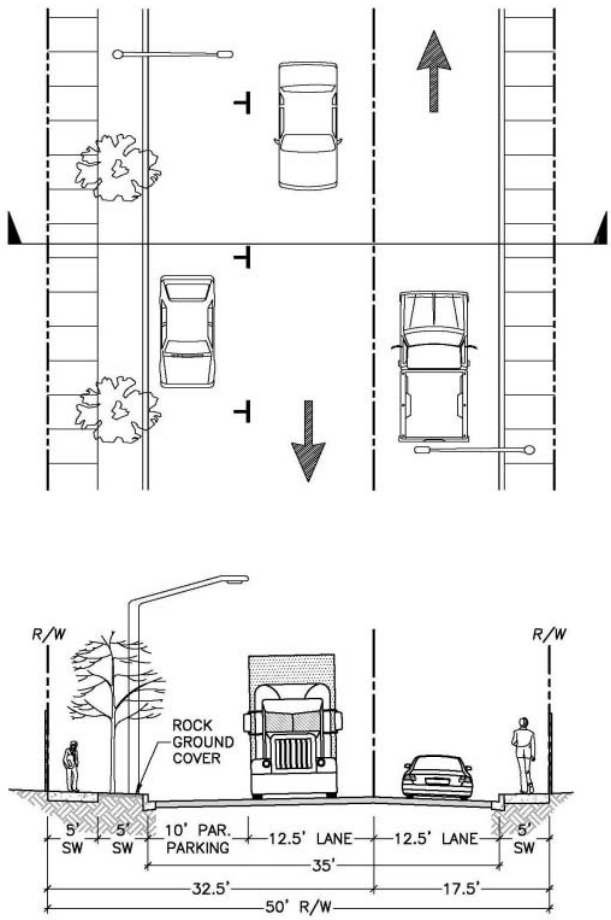

Figure 4.24: Potential Tidewater Avenue 50-foot Plan/Cross-Section

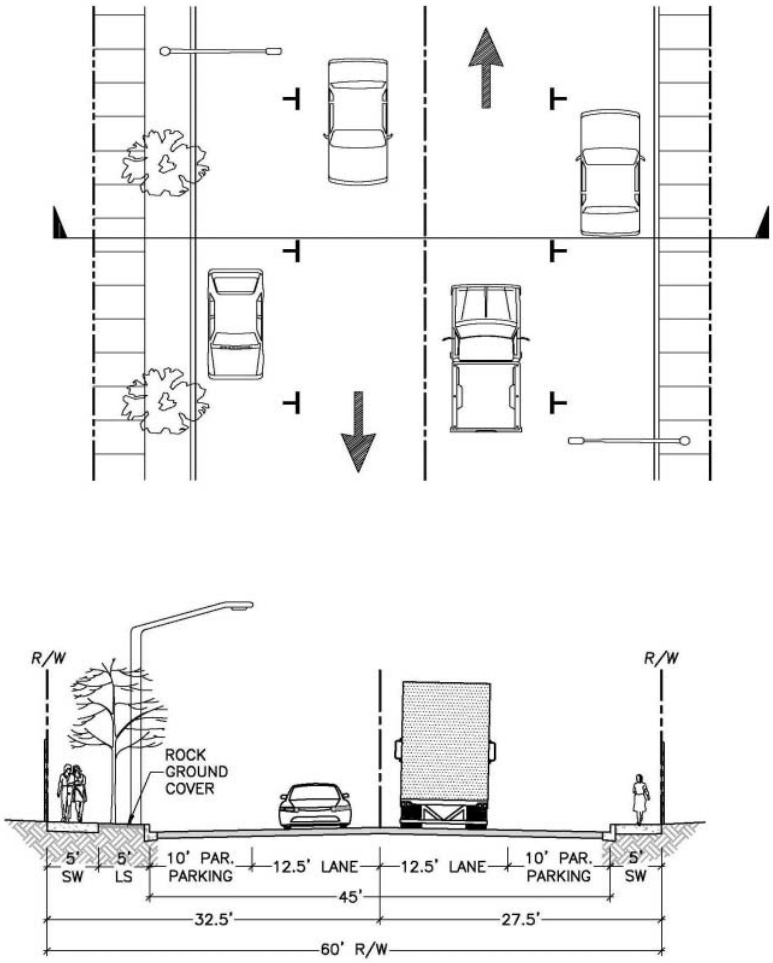

Figure 4.25: Potential Tidewater Avenue 60-foot Plan/Cross-Section

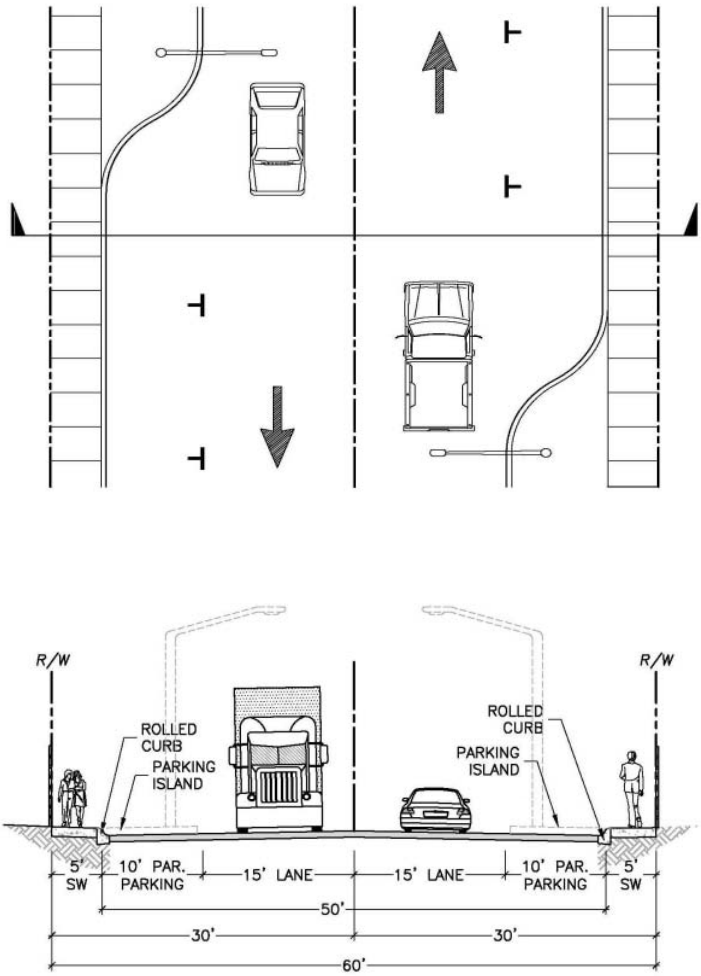

Figure 4.26: Potential Tidewater Avenue 60-foot Plan/Cross-Section with rolled curb

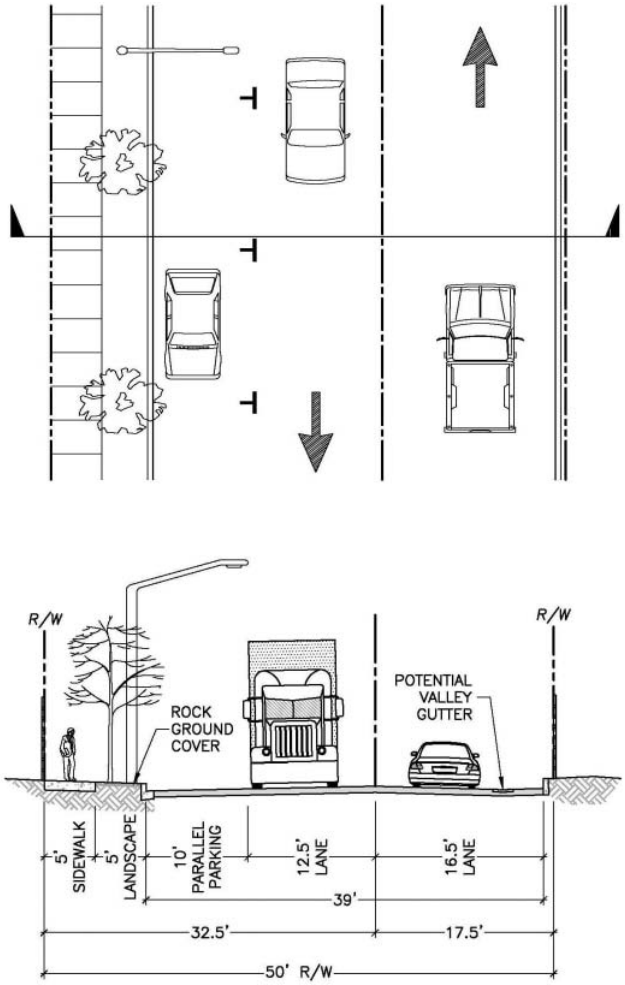

Figure 4.27: Potential Tidewater Avenue 50-foot Plan Cross-Section – Option 1

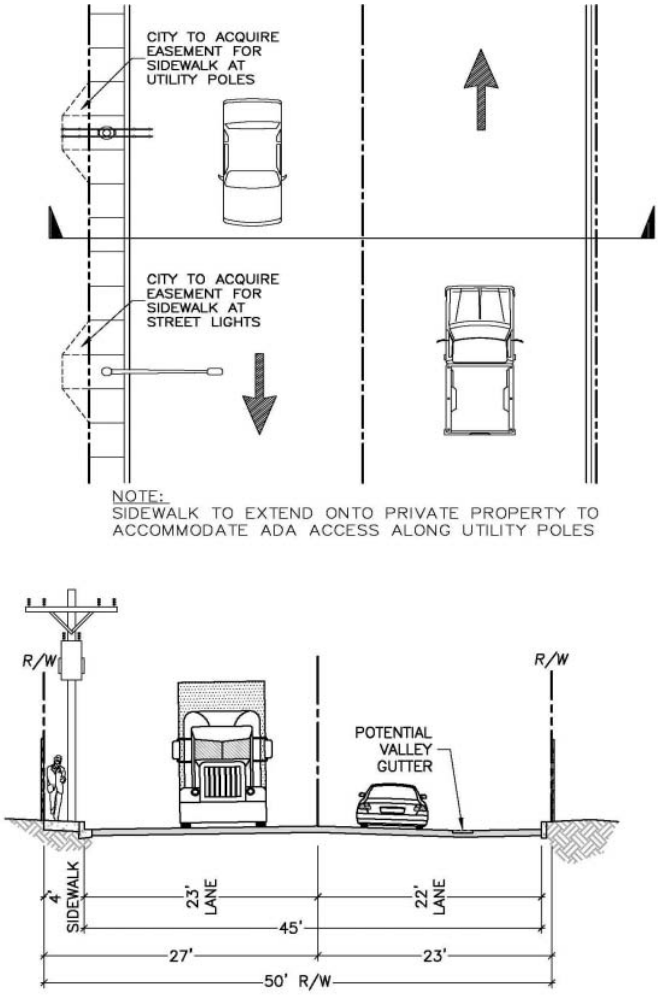

Figure 4.28: Potential Tidewater Avenue 50-foot Plan/Cross-Section – Option 2

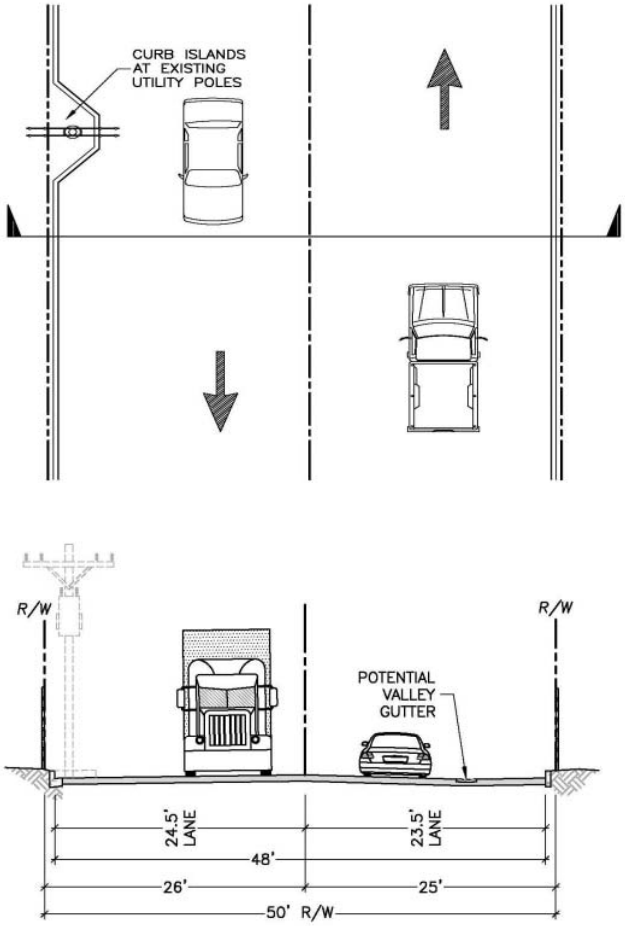

Figure 4.29: Potential Tidewater Avenue 50-foot Plan/Cross-Section – Option 3

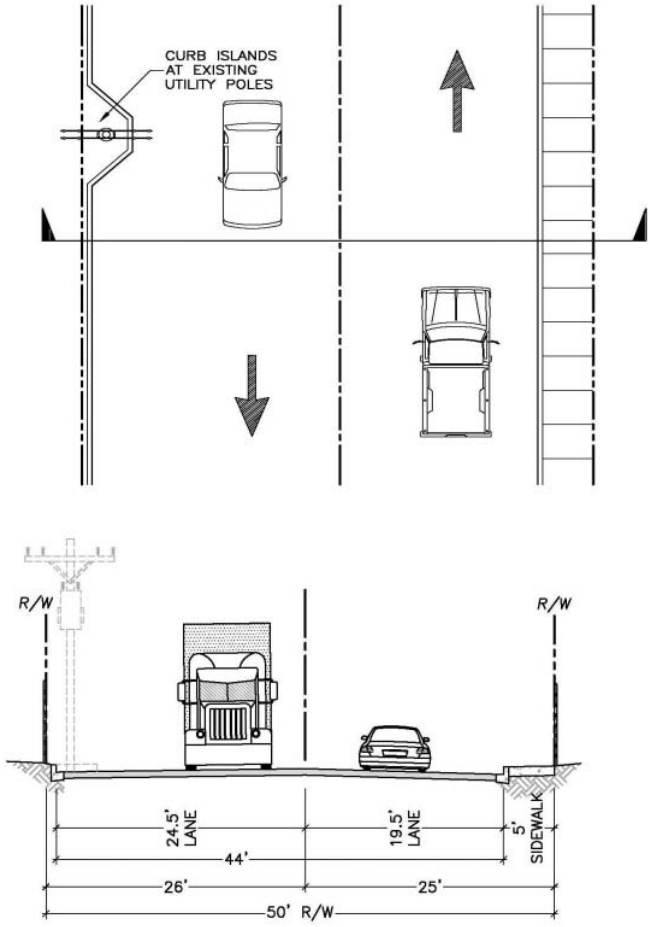

Figure 4.30: Potential Tidewater Avenue 50-foot Plan/Cross-Section – Option 4

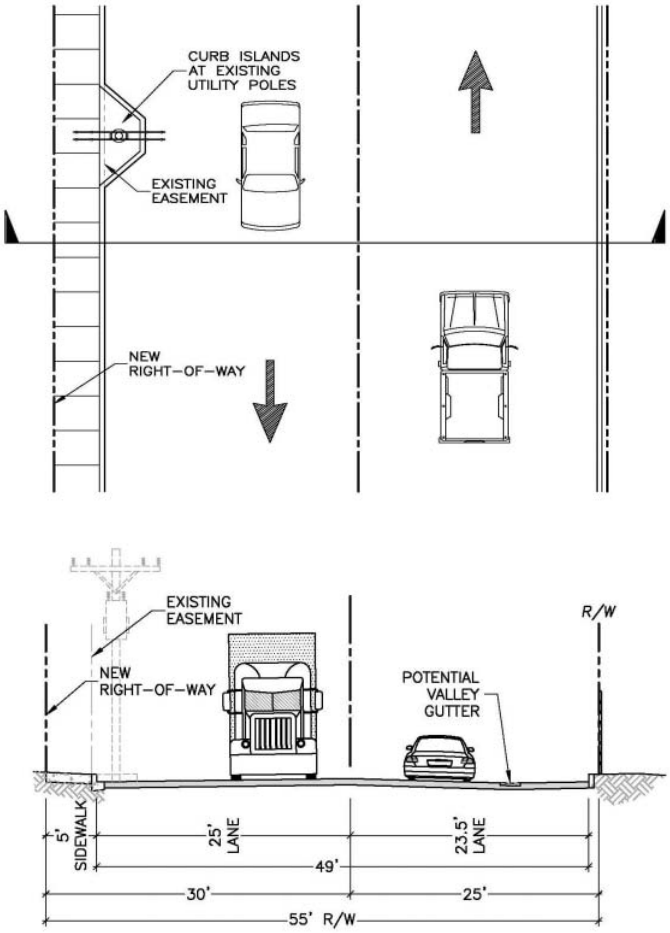

Figure 4.31: Potential Tidewater Avenue 55' Plan/Cross-Section – Option 5A

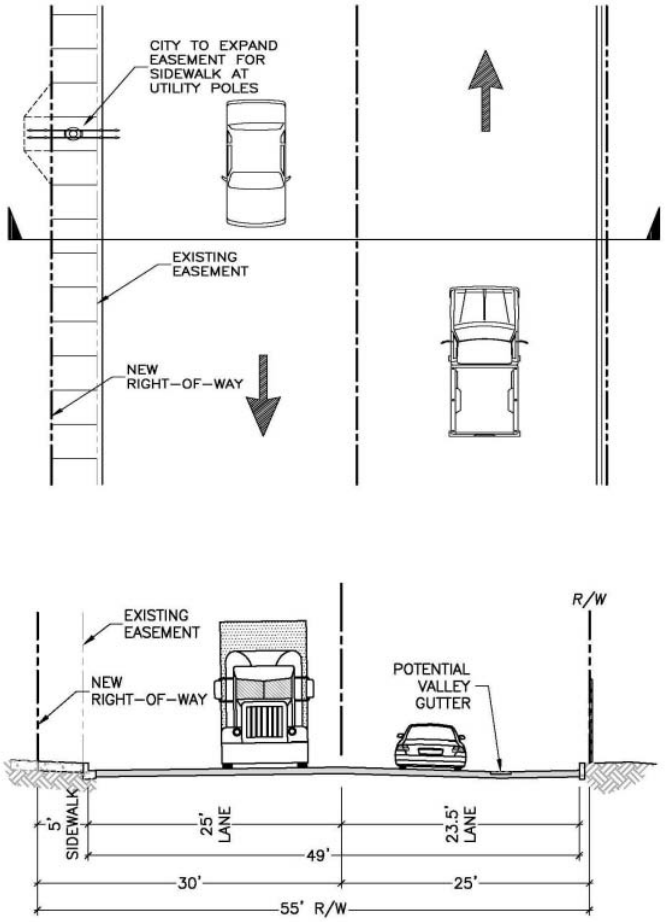

Figure 4.32: Potential Tidewater Avenue 55′ Plan/Cross-Section – Option 5B

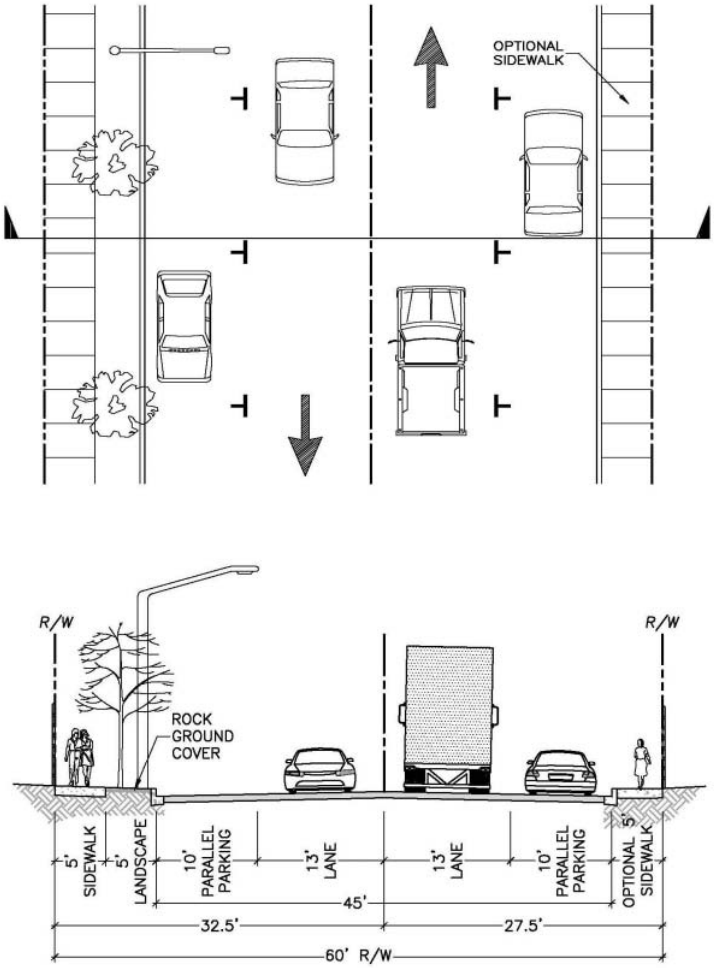

Figure 4.33: Potential Tidewater Avenue 60-foot Plan/Cross-Section

Lesser Street

Lesser Street connects Tidewater Avenue to Oakport Street and is densely populated with active businesses along its length. There is a 40-foot street section that accommodates parallel parking on each side and 24-feet clear for two-way travel. The parking spaces are typically full during business hours, delivery and hot meal trucks regularly double park, and there is significant through-truck traffic. Additionally, many of the properties have loading/unloading facilities that require large trucks to back in from the street, a maneuver that inherently takes time and space. These factors all contribute to regular traffic delays on the street.

From a circulation, parking-space-utilization and pedestrian perspective, BKF does not recommend any changes to the Lesser Street section. The existing section makes the most efficient use of the existing right-of-way and it does not appear that there is any reasonable opportunity for the City to acquire additional right-of-way. The mitigation that will most improve the situation on Lesser Street is the improvement of the southeast corner of the Tidewater Avenue and High Street intersection, which will increase the safety and efficiency of the right turn onto High Street, thus encouraging truck traffic that would typically avoid this intersection (by using Lesser Street) to utilize it and, therefore decrease the volume of truck traffic along Lesser Street.

Gateway Opportunities

In the Tidewater Industrial Zone, opportunities for gateway monuments have been identified at the corners of Oakport Street /Lesser Street and Tidewater Avenue/High Street. Placement of a gateway monument at Tidewater Avenue/High Street would be dependent upon the mitigation measures chosen and implemented by the City of Oakland, and would have to be incorporated into the final improvement program at the intersection. For instance, if the "street" were to remain in private ownership and be converted into a common driveway, a monument at this location would be inappropriate.

General improvement and installation of gateway monumentation at the intersection of Oakport Street and Lesser Street should be a high priority (Figure 4.34). The intersection is an obvious entry point into a vibrant business area and its existing condition is sub-par.

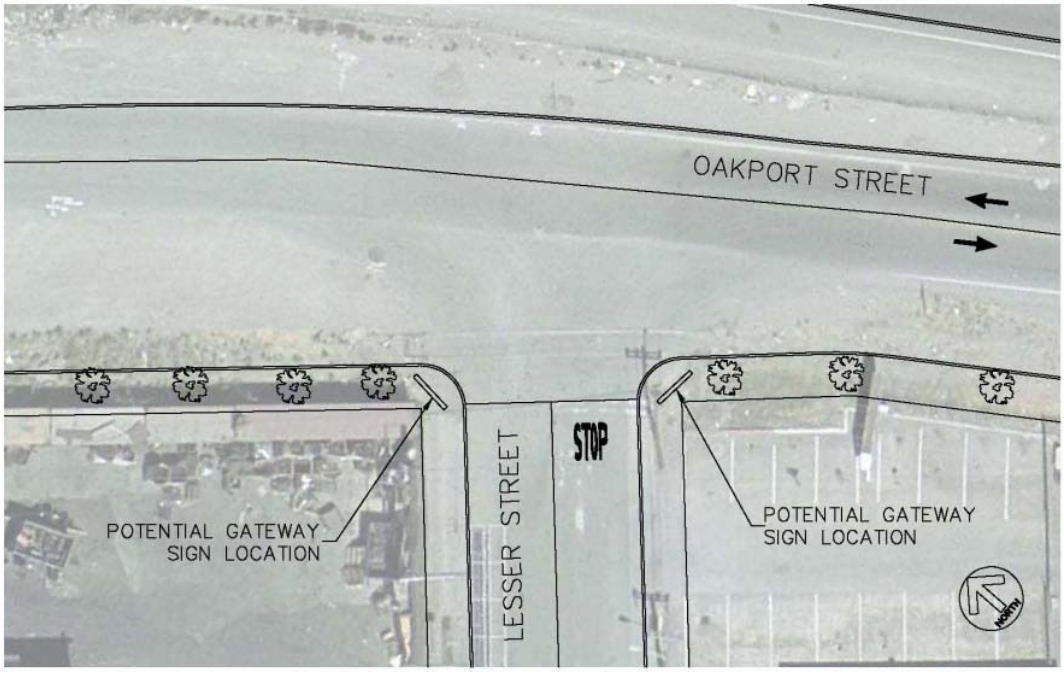

Figure 4.34: Lesser Street / Oakport Street Gateway Opportunity

New sidewalks, landscaping, paving and striping, combined with the removal of existing, abandoned railroad tracks and the relocation of utility poles, which currently conflict with turning movements, are all recommended.

V. ROADWAY AND PAVEMENT REHABILITATION

Roadway pavement surface conditions within the public rights-of-way are a critical component to encouraging and supporting economic activity in any commercial industrial zone. Along with the appearance of the streetscape, which itself is greatly affected by the roadway surface condition, the ride quality creates an indelible impression for motorists entering and traveling through a zone. Deteriorating pavement conditions signal of a lack of vitality.

As a basis for evaluating the roadway pavement surfaces, BKF Engineers was provided with the results in the area of the City of Oakland's Pavement Management Plan, which was based on field observations made between the spring of 2003 and the spring of 2005.

Specific pavement characteristics, such as cracking, alligator cracking, depressions, and exposed aggregates were observed in the field for each zone (Appendix C).

In general, the existing pavement conditions correlate with the Pavement Condition Exhibit provided to BKF Engineers from the City of Oakland. BKF Engineers recommends multiple asphalt concrete (AC) pavement rehabilitation methods depending on the severity of pavement damage observed. Predominantly, the AC rehabilitation will encompass a final slurry seal and AC overlay once cracks are sealed and minor failures are excavated and replaced. Both of these methods improve appearance and ride quality while additionally protecting existing structural sections. A slurry seal will be appropriate for roads in good condition which exhibit minor cracking. Where ride

quality is not ideal and pavement exhibits more than minor cracking, a 2-inch minimum grind and overlay will prolong pavement life and ride quality.

More involved rehabilitation is required for more extreme situations where the structural integrity of the pavement section has failed. This includes excavation and then recompaction of sub-base material (usually aggregate base, or AB), or full replacement of the pavement section. For pavement that exhibits base failure, resulting in depressions and extensive alligator cracking patterns, full removal and replacement of the existing AC, after AB recompaction (and possibly the addition of more AB), will prevent future depressions. Streets in significant disrepair with pot holes and numerous fatigue characteristics will require a full section replacement.

Woodland-81st Avenue Industrial Zone

On July 17, 2008, BKF Engineers performed a site visit to the zone to verify the pavement condition levels provided by the City. A majority of the AC pavement appears to be adequate for the Woodland-81st Industrial Zone. BKF estimates slightly over 200,000 SF of the streets will require an AC grind-and-overlay, while approximately 185,000 SF will require slurry seal. The following three roads have segments that will require full-section reconstruction: Railroad Avenue (South of Louisiana Street), Baldwin Avenue, and a small portion of 92nd Avenue.

San Leandro Street carries the bulk of the traffic in the Woodland-81st Ave Industrial Zone, and, as such, was constructed with Portland Cement Concrete (PCC) with expansion joints approximately every 15-feet. To improve the "jarring sensation" while driving over these joints, a procedure, called a "dowel-bar-retrofit" (DBR, Appendix B), which will also assist in transferring lateral loads between the joints, is recommended. The DBR will prevent the joints from separating vertically and horizontally. This will aide in maintaining ride quality. Although DBR (combined with pavement milling and an AC overlay) is costly, it will significantly improve the ride quality, aesthetic appeal and lifespan of San Leandro Street. The street also exhibits cracks, exposed aggregates and saw cuts from previous utility installations and improvements that will have to be remedied by an assortment of the techniques described in the introduction to this section of the report.

Blaine Court also has a portion of PCC at the intersection of 85th Avenue. The PCC at this intersection shows fatigue and does not vertically match the AC at the corner of 85th Avenue. BKF recommends milling the existing PCC and overlaying the entire portion with AC to increase the pavement life and improve ride quality.

It was noted by local business representatives, and verified through our site survey, that the railroad crossing at 81st Avenue, just east of San Leandro Street is in very poor condition. Its repair should be a first level priority.

Melrose-Coliseum Industrial Zone

On August 8, 2008, BKF Engineers performed an existing pavement assessment for the Melrose-Coliseum Industrial Zone. The pavement in this zone receives high volumes of truck traffic, resulting in numerous areas of fatigue. The majority of the pavement failure can generally be found at areas where the gutter meets the street pavement. More specifically, these areas are usually adjacent to a loading dock or driveway that conveys heavy truck traffic and, therefore, also exhibits alligator cracking with some depressions in the pavement. Where depressions are prevalent, a recompaction of the aggregate base (AB) section will be needed.

There are multiple areas where pavement will need to be improved adjacent to existing railroad crossings. AC grind and overlay before and after railroad crossings will improve ride quality for vehicles driving over the tracks.

Tidewater Industrial Zone

The Tidewater Industrial Zone is bordered by Oakport Street, Lesser Street, Tidewater Avenue, and High Street. These Tier 1 streets (Figure 4.23) should be the first to be repaired as they convey the majority of the traffic around this entire zone. Oakport Street has multiple sections of base failure and recent overlays have not fully fixed the fatigue.

The segment of Lesser Street between Oakport Street and Malat Street would benefit from AC grind and overlay. Lesser Street, between Malat Street and Tidewater Avenue, should have the AB recompacted and the AC section reconstructed.

Tidewater Avenue has pavement conditions similar to Lesser Street, with the noted exception that the northern section exhibits extensive alligator cracking due to heavy truck traffic and poor surface drainage. For this section, BKF recommends full-depth pavement replacement.

High Street pavement fatigue consists of cracking in the wheel path and some spalling. It would be appropriate to grind and overlay where needed to improve ride quality and increase the life of the pavement.

VI. STREET LIGHTING

Lighting is another important factor in improving the existing industrial area. Proper lighting provides the following benefits:

- Promotes and supports safe operation of vehicles at night
- Promotes nighttime operation of businesses and industries
- Enables pedestrians to identify persons and activities at a safe distance
- Deters unlawful activity
- Enhances the neighborhood

The City of Oakland has set standards for street lighting, differentiated by city zoning and street classification. These standards regulate the luminance of a street and the surrounding sidewalks, as well as setting a standard uniformity-ratio requirement. As the areas in question are all zoned as "industrial", the standard luminance is 1.4 foot-candles on average and the uniformity ratio is 3:1. For the purposes of this study, street classifications were not considered. This standard is set

by the 1999 Amended City of Oakland Street Lighting Warrants (Appendix D). The existing lighting has been assessed for each zone, and recommendations are included.

A lighting assessment was performed on lights alternating in staggered formation and lights only on one side of the road. For the assessment, the following values were assumed:

- Height of street light: 30-feet
- Average wattage of each light: 250 w
- Light loss factor: 0.8
- Average Street Width: 40-feet
- San Leandro Street Width: 80-feet

The minimum light spacing was determined using the minimum luminance requirement with the above information. For lighting on only one side of the street, the minimum spacing between light poles is 120-feet. For lighting in a staggered arrangement, alternating between both sides of the road, the minimum light pole spacing is 260-feet. For streets with a width of 80-feet and lights in a staggered arrangement on both sides of the road, the minimum light pole spacing is 155-feet. These light pole spacing standards are applicable for all of the industrial zones. See Appendix D for all three light spacing standards.

Many of the existing street lights are mounted on utility poles. In general, if utility pole relocations were required due to public improvements, PG&E would absorb the cost associated with the relocation. At this time, it is uncertain if there will be any cost due to utility pole relocation due to private development.

Streetlights on utility poles are generally an issue because many of the poles are at the end of their useful life. Repairs are inherently more difficult logistically, as they must be coordinated with PG&E.

Many of the streetlights have been damaged by truck traffic, because the mast arms do not, in many cases, accommodate trucks, from either a height or width perspective. Any upgrade to the lighting system should take truck movements into account.

BKF does not recommend replacing the existing lights with Light Emitting Diode (LED) lighting. LED Lighting offers several benefits over conventional, high pressure sodium (HPS) street lighting in some applications, particularly in dense residential developments or park paths where higher concentrations of light and glare control are of paramount importance. In the focus areas, LED lighting is not practical due to the street widths, the absence of residences and the high concentration of lights that would be required to meet the *minimum foot-candle requirements set forth by the City of Oakland.*

Final implementation of recommended streetlight improvements should account for current street classifications.

Woodland-81st Industrial Zone

On July 22, 2008, BKF Engineers evaluated the public street lighting in the Woodland – 81st Industrial Zone. The existing lights all have unique pole spacing on each street with non-uniform arrangements. During the time of the site visit, there were 46 lights that were not in operation. Recently, the lights were repaired by the City of Oakland's Electrical Services Department. An

exhibit displaying the locations of the non-operational lights on July 22, 2008 can be found in Appendix D. During this site visit, there were numerous situations where lights from private properties (such as flood lights on warehouses) may have provided the perception of adequate lighting. If private lights were removed in the future, the lighting of the street would be much darker.

Disregarding the lighting from privately owned buildings, BKF Engineers used the minimum street light spacing standards to evaluate the need for additional lighting. Using these criteria, multiple streets failed to meet the street lighting standard set by the City of Oakland. The following is a list of the streets that need additional lighting, along with the approximate number of light poles recommended:

Tier 1:	
• 81st Ave	7 Light Poles
• San Leandro Street	21 Light Poles
	28 Light Poles
Tier 2:	
• Baldwin Street	7 Light Poles
• 85th Ave (North of San Leandro)	5 Light Poles
• 85th Ave (South of San Leandro)	13 Light Poles
• 92nd Ave	5 Light Poles
	30 Light Poles
Tier 3:	
• Railroad Ave	13 Light Poles
• Edes Ave	2 Light Poles
• McClary Ave	1 Light Pole
	16 Light Poles

It is recommended that a total of approximately seventy-four (74) street lights be added to the area. An exhibit displaying the approximate recommended locations for additional light poles can be found in Appendix D. These additions should be made in combination with the necessary repairs stated above.

Melrose-Coliseum Industrial Zone

The street lighting for the Melrose-Coliseum Zone was also evaluated against the minimum street light spacing standards, as set by Oakland guidelines. Again, there were numerous situations where the existing lighting did not meet these requirements. The following is a list of streets within this industrial zone which needs additional lighting, along with the approximate number of lights needed per street:

Tier 1:	
• Coliseum Way	19 Light Poles
• 50th Avenue	3 Light Poles
• East 8th Street	2 Light Poles
	24 Light Poles
Tier 2:	
• 45 Avenue	1 Light Pole
• 46th Avenue	1 Light Pole
	2 Light Poles

Tier 3:

• 47th Avenue	2 Light Poles
• 49th Avenue	2 Light Poles
• 53rd Avenue	1 Light Pole
• Julie Ann Way	2 Light Poles
• Kevin Court	2 Light Poles
• Independent Road	4 Light Poles
	13 Light Poles

BKF Engineers recommends a total of 39 street light poles be added to the Melrose – Coliseum Industrial Zone. This measure will supply enough additional lighting for the entire industrial zone to meet the public street lighting standards.

Tidewater Industrial Zone

The street lighting for Tidewater Industrial Zone also needs to be upgraded. Every street within the zone needs at least one additional street light, while several streets require many more. Tidewater Avenue, for example, currently does not have any public street lighting, which is unacceptable according to the regulations set by the 1999 Amended Street Lighting Warrants. The following is a list of the streets within the industrial zone and the number of additional street light poles needed:

Tier 1:

• Tidewater Avenue	12 Light Poles
• High Street	5 Light Poles
• Oakport Street	9 Light Poles
• Lesser Street	4 Light Poles
	30 Light Poles

Tier 2:

• Jensen Street	2 Light Pole
• Howard Street	1 Light Pole
	3 Light Poles

Tier 3:

• Malat Street	1 Light Poles
	1 Light Pole

An additional thirty-four (34) lights are recommended for the Tidewater Industrial Zone. This measure will supply enough additional lighting for the entire industrial zone to meet the public street lighting standards.

VII. SANITARY SEWER CONVEYANCE SYSTEM

Recommendations for improving the Storm Drainage System in the zones have been made by the City of Oakland Right-of-Way Management Division of CEDA. They estimate that 30% of the existing storm drainage conduits and 100% of the storm drainage structures would need

The Sanitary Sewer Evaluation Survey (SSES) measured average and peak flows from sub-basins throughout the City and is used as a tool for tracking and allocating capacity of the major sewer

trunk main lines (interceptors) that are owned by East Bay Municipal Utility Zone (EBMUD). The Woodland-81st Avenue Zone sewer system discharges into the EBMUD South Interceptor.

Based on BKF's review of the SSES for the zone, BKF notes that roughly 80% of the total peak wet weather flow is the result of groundwater infiltration and rainfall-dependent inflow (collectively referred to as "I/I"), with the remaining 20% consisting of actual sewage. As much of this system is old, and was likely constructed with vitrified clay pipe (VCP), BKF further assumes that any redevelopment of isolated areas that would include the installation of new laterals would result in much lower I/I flows and would more than offset any increase in sewage that may result from new land uses.

The improvements proposed by the City of Oakland would also reduce I/I in the area. With respect to assigning priority to sewer and storm improvements, any underground utility improvements should be installed before any streetscape or pavement improvements are made to prevent damage and the need for patching such improvements during trenching operations.

While BKF would not expect an impact to the conveyance system with increased sewage-generation associated with potential new land uses, there would be an increase in average day sewer flows. Additionally, during wet weather events, greater concentrations of sewage could be expected to flow from the project area because of the combination of increased sewer generation and decreased I/I. The higher sewage concentration levels might require a higher level of treatment at the EBMUD wastewater treatment plant, near the entrance of the San Francisco-Oakland Bay Bridge. Any project within the area that proposes significant increases in sewer generation would likely, in order to comply with the California Environmental Quality Act (CEQA), be required to analyze the affects of increased demand on the treatment plant, and potentially contribute to its expansion.

Woodland-81st Industrial Zone

Total costs to upgrade the Sanitary Sewer system are estimated by the City of Oakland to be $398k (See Appendix H).

Tier 1 Improvement Costs are estimated to be: $160k

Tier 2 Improvement Costs are estimated to be: $80k

Tier 3 Improvement Costs are estimated to be: $150k

Melrose-Coliseum Industrial Zone

Total costs to upgrade the Sanitary Sewer system are estimated by the City of Oakland to be $1.3-million (See Appendix H).

Tier 1 Improvement Costs are estimated to be: $740k

Tier 2 Improvement Costs are estimated to be: $905

Tier 3 Improvement Costs are estimated to be: $470k

Tidewater Industrial Zone

Total costs to upgrade the Sanitary Sewer system are estimated by the City of Oakland to be $385k (See Appendix H).

Tier 1 Improvement Costs are estimated to be: $330k

Tier 2 Improvement Costs are estimated to be: $19k

Tier 3 Improvement Costs are estimated to be: $35k

VIII. STORM DRAINAGE CONVEYANCE SYSTEM

Recommendations for improving the Storm Drainage System in the zones have been made by the City of Oakland Right-of-Way Management Division of CEDA. They estimate that 30% of the existing storm drainage conduits and 100% of the storm drainage structures would need to be rehabilitated. These estimates are based on information in the City of Oakland's Storm Drainage Master Plan (completed by CH2MHILL in 2004), inspections done during the master planning process, site visits, and general experience with similar storm drainage systems constructed in the 1930's through the 1960's.

The Master Plan also indicated that upgrades to the capacity of the existing system would be required.

The area is mapped by the Federal Emergency Management Agency (FEMA) to be in Flood Zone B, which indicates an area inundated by 500-year flooding; an area inundated by 100-year flooding with average depths of less than 1 foot or with drainage areas less than 1 square mile; or an area protected by levees from 100-year flooding.

While it is not within the BKF scope of work to evaluate the adequacy of the Storm Drainage Master Plan, BKF does note that any new development that impacts an area greater than 10,000 SF would be subject to provision C.3 of the City of Oakland's National Pollutant Discharge Elimination System (NPDES) permit with the State of California and would therefore need to implement storm water treatment measures under the building permit of any such development. This will, in the aggregate, serve to lower the overall run-off coefficient in the area, which could serve to make the Storm Drainage Master Plan inherently conservative.

BKF also notes that the streets within the zone are fairly flat and likely experience extensive ponding. With potential surface improvements and higher levels of industrial and, potentially, residential uses in the area, the ponding areas could become more noticeable. Additional storm drainage structures, including conduit, would be a way to mitigate this ponding.

Woodland-81st Industrial Zone

Total costs to upgrade the Storm Drainage system are estimated by the City of Oakland to be $5.3-million (See Appendix I).

Melrose-Coliseum Industrial Zone

Total costs to upgrade the Storm Drainage system are estimated by the City of Oakland to be $4.7-million (See Appendix I).

Tidewater Industrial Zone

Total costs to upgrade the Storm Drainage system are estimated by the City of Oakland to be $3.8-million (See Appendix I).

IX. SUMMARY OF PRIORITIZATIONS AND FORECASTED COST

Recommendations for improving the Storm Drainage System in the zones have been made by the City of Oakland Right-of-Way Management Division of CEDA. They estimate that 30% of the existing storm drainage conduits and 100% of the storm drainage structures would need to be rehabilitated. These estimates

BKF recommends the Oakland Industrial area implement the following order of improvements to encourage industrial redevelopment.

Woodland-81st Avenue Industrial Zone

Tier 1	***Cost***
Level 1 - Gateway Modifications	$750,000
Level 2 - Storm Drain and Sanitary Sewer Modifications	$2,350,000
Level 3 - Surface/Streetscape Improvements	$2,910,000
25% Contingency	$1,510,000
Total	**$7,520,000**

Tier 2	***Cost***
Level 1 - Gateway Modifications	$300,000
Level 2 - Storm Drain and Sanitary Sewer Modifications	$1,150,000
Level 3 - Surface/Streetscape Improvements	$2,025,000
25% Contingency	$870,000
Total	**$4,345,000**

Tier 3	***Cost***
Level 1 - Gateway Modifications	$150,000
Level 2 - Storm Drain and Sanitary Sewer Modifications	$2,220,000
Level 3 - Surface/Streetscape Improvements	$1,335,000
25% Contingency	$920,000
Total	**$4,625,000**

Woodland-81st Avenue Industrial Zone Total	**$16,490,000**

Melrose-Coliseum Industrial Zone

Tier 1	***Cost***
Level 1 - Gateway Modifications	$470,000
Level 2 - Storm Drain and Sanitary Sewer Modifications	$3,390,000
Level 3 - Surface/Streetscape Improvements	$5,310,000
25% Contingency	$2,290,000
Total	**$11,460,000**

Tier 2	***Cost***
Level 2 - Storm Drain and Sanitary Sewer Modifications	$420,000
Level 3 - Surface/Streetscape Improvements	$575,000
25% Contingency	$250,000
Total	**$1,245,000**

Tier 3	***Cost***
Level 2 - Storm Drain and Sanitary Sewer Modifications	$2,150,000
Level 3 - Surface/Streetscape Improvements	$1,830,000
25% Contingency	$1,000,000
Total	**$4,980,000**

Melrose-Coliseum Industrial Zone Total	**$17,685,000**

Tidewater Industrial Zone

Tier 1	***Cost***
Level 1 - Gateway Modifications	$150,000
Level 2 - Storm Drain and Sanitary Sewer Modifications	$3,590,000
Level 3 - Surface/Streetscape Improvements	$2,500,000
25% Contingency	$1,560,000
Total	**$7,800,000**

Tier 2	***Cost***
Level 2 - Storm Drain and Sanitary Sewer Modifications	$210,000
Level 3 - Surface/Streetscape Improvements	$300,000
25% Contingency	$130,000
Total	**$640,000**

Tier 3	***Cost***
Level 2 - Storm Drain and Sanitary Sewer Modifications	$390,000
Level 3 - Surface/Streetscape Improvements	$65,000
25% Contingency	$110,000
Total	**$565,000**

Tidewater Industrial Zone Total	**$9,005,000**

Appendix A

Oakland Industrial Districts
Oakland, CA

Unit Costs

Pavement Rehabilitation	$/SF	$/TON	$/BAR
Slurry Seal	$0.60		
AC Grind/Overlay (Minimum 2")	$2.50		
Remove AC/Recompact Base Material	$9.00		
Pavement Section Replacement (7" AC/23.5" AB)	$11.50		
Mill Pavement	$0.20		
AC Overlay		$50.00	
Dowel Bar Retrofit			$30
Note: $30 / Bar includes installation			

Railroad Crossing Rehabilitation	$/Crossing
AC Grind	$20,000.00

Miscellaneous	$/SF	$/EA	$/LF	$/TIER
Concrete Sidewalk	$8.00			
Street Light		$3,000.00		
Street Tree		$400.00		
Signage				$30,000
Striping			$1.75	
Trafffic Signal Modifications		$50,000.00		
Landscaping	$5.00			

Right-of-Way Separation	$/LF
Wrought Iron Fence	$50.00
Note: Assume 50% of total linear footage needs fencing. Sections with buildings, parking lots, driveways, etc. do not need fencing	

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Oakland Industrial District
Woodland - 81st Avenue Industrial Zone
Oakland, CA

Tier 1

ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST

San Leandro Street
81st Avenue

TIER 1

LEVEL	DESCRIPTION	UNIT COST	QTY.	UNIT	AMOUNT
1	***GATEWAY MODIFICATIONS***				
	81ST AVENUE GATEWAY	$ 300,000.00	1	EA	$ 300,000
	98TH AND SAN LEANDRO GATEWAY	$ 300,000.00	1	EA	$ 300,000
	HEGENBERGER ROAD EAST OFF RAMP GATEWAY	$ 150,000.00	1	EA	$ 150,000
				GATEWAY MODIFICATIONS SUBTOTAL	**$ 750,000**
2	***STORM DRAIN AND SEWER***				
	STORM DRAIN MODIFICATIONS				$ 2,190,000
	SEWER MODIFICATIONS				$ 160,000
				STORM DRAIN AND SEWER SUBTOTAL	**$ 2,350,000**
3	***SURFACE / STREETSCAPE***				
	SLURRY SEAL	$ 0.60	66,000	SF	$ 40,000
	REMOVE AC / RECOMPACT BASE	$ 9.00	8,800	SF	$ 80,000
	PAVEMENT MILLING	$ 0.20	528,000	SF	$ 110,000
	AC OVERLAY	$ 50.00	13,000	TON	$ 650,000
	DOWEL BAR RETROFIT	$ 30.00	10,560	BAR	$ 320,000
	RAILROAD CROSSING AC REPLACEMENT	$ 20,000.00	2	EA	$ 40,000
	CONCRETE SIDEWALK x50%	$ 8.00	75,000	SF	$ 300,000
	NOTE: ASSUME 50% SIDEWALKS NEED RECONSTRUCTION				
	STREET LIGHTS	$ 3,000.00	28	EA	$ 80,000
	TRAFFIC SIGNAL MOD'S (ADD PED CONTROL)	$ 50,000.00	4	EA	$ 200,000
	SIGNAGE	$ 30,000.00	1	TIER	$ 30,000
	STREET TREES	$ 400.00	440	EA	$ 180,000
	LANDSCAPING	$ 5.00	37,500	EA	$ 190,000
	STRIPING	$ 1.75	30,800	LF	$ 50,000
	WROUGHT IRON FENCING	$ 50.00	8,800	LF	$ 440,000
				SURFACE / STREETSCAPE SUBTOTAL	**$ 2,710,000**

TIER 1		
LEVEL 1		$ 750,000
LEVEL 2		$ 2,350,000
LEVEL 3		$ 2,710,000
	25% Contingency	$ 1,460,000
	TIER 1 TOTAL	**$ 7,270,000**

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Woodland - 81st Avenue Industrial Zone

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Tier 2

85th Avenue
Baldwin Street
92nd Avenue
Blaine Street

TIER 2

LEVEL	DESCRIPTION		UNIT COST	QTY.	UNIT	AMOUNT
1	***GATEWAY MODIFICATIONS***					
	HEGENBERGER ROAD / BALDWIN GATEWAY		$ 150,000.00	1	EA	$ 150,000
	85TH AND ENTERPRISE WAY GATEWAY		$ 150,000.00	1	EA	$ 150,000
					GATEWAY MODIFICATIONS SUBTOTAL	**$ 300,000**
2	***STORM DRAIN AND SEWER***					
	STORM DRAIN MODIFICATIONS					$ 1,070,000
	SEWER MODIFICATIONS					$ 80,000
					STORM DRAIN AND SEWER SUBTOTAL	**$ 1,150,000**
3	***SURFACE / STREETSCAPE***					
	SLURRY SEAL		$ 0.60	44,000	SF	$ 30,000
	GRIND / AC OVERLAY		$ 2.50	108,000	SF	$ 270,000
	REMOVE AC / RECOMPACT BASE		$ 9.00	0	SF	$ -
	PAVEMENT SECTION REPLACEMENT		$ 11.50	37,800	SF	$ 435,000
	PAVEMENT MILLING		$ 0.20	18,000	SF	$ 5,000
	AC OVERLAY		$ 50.00	200	TON	$ 10,000
	RAILROAD CROSSING AC REPLACEMENT		$ 2.00	20,000	EA	$ 40,000
	CONCRETE SIDEWALK	x50%	$ 8.00	75,000	SF	$ 300,000
	NOTE: ASSUME 50% SIDEWALKS NEED RECONSTRUCTION					
	STREET LIGHTS		$ 3,000.00	30	EA	$ 90,000
	SIGNAGE		$ 30,000.00	1	TIER	$ 30,000
	STREET TREES		$ 400.00	343	EA	$ 140,000
	LANDSCAPING		$ 5.00	37,500	SF	$ 95,000
	STRIPING		$ 1.75	13,700	LF	$ 25,000
	WROUGHT IRON FENCING		$ 50.00	6,900	LF	$ 345,000
					SURFACE / STREETSCAPE SUBTOTAL	**$ 1,815,000**

	TIER 2	
	LEVEL 1	$ 300,000
	LEVEL 2	$ 1,150,000
	LEVEL 3	$ 1,815,000
	25% Contingency	$ 820,000
	TIER 2 TOTAL	**$ 4,085,000**

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Woodland - 81st Avenue Industrial Zone

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Tier 3

Hegenberger Road
McClary Avenue
Amelia Street
Railroad Avenue
98th Avenue
Edes Avenue

TIER 3

LEVEL	DESCRIPTION		UNIT COST	QTY.	UNIT	AMOUNT
1	***GATEWAY MODIFICATIONS***					
	RAILROAD AND LOUISIANA GATEWAY		$ 150,000.00	1	EA	$ 150,000.00
					GATEWAY MODIFICATIONS SUBTOTAL	**$ 150,000**
2	***STORM DRAIN AND SEWER***					
	STORM DRAIN MODIFICATIONS					$ 2,065,000
	SEWER MODIFICATIONS					$ 155,000
					STORM DRAIN AND SEWER SUBTOTAL	**$ 2,220,000**
3	***SURFACE / STREETSCAPE***					
	SLURRY SEAL		$ 0.60	75,000	SF	$ 45,000
	GRIND / AC OVERLAY		$ 2.50	53,900	SF	$ 135,000
	REMOVE AC / RECOMPACT BASE		$ 9.00	750	SF	$ 5,000
	SIDEWALK	x50%	$ 8.00	50,900	SF	$ 205,000
	NOTE: ASSUME 50% SIDEWALKS NEED RECONSTRUCTION					
	STREET LIGHTS		$ 3,000.00	16	EA	$ 50,000
	SIGNAGE		$ 30,000.00	1	TIER	$ 30,000
	STREET TREES		$ 400.00	470	EA	$ 190,000
	LANDSCAPING		$ 5.00	25,450	SF	$ 65,000
	STRIPING		$ 1.75	13,800	LF	$ 30,000
	WROUGHT IRON FENCING		$ 50.00	9,400	LF	$ 470,000
					SURFACE / STREETSCAPE SUBTOTAL	**$ 1,225,000**

	TIER 3	
	LEVEL 1	$ 150,000
	LEVEL 2	$ 2,220,000
	LEVEL 3	$ 1,225,000
	25% Contingency	$ 890,000
	TIER 3 TOTAL	**$ 4,485,000**

	WOODLAND - 81ST AVENUE INDUSTRIAL ZONE	
	TIER 1	$ 7,270,000
	TIER 2	$ 4,085,000
	TIER 3	$ 4,485,000

WOODLAND - 81ST AVENUE INDUSTRIAL ZONE TOTAL **$ 15,840,000**

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Oakland Industrial District
Melrose - Coliseum Industrial Zone
Oakland, CA

Tier 1

50th Avenue
E 8th Street
Coliseum Way

ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST

TIER 1

LEVEL	DESCRIPTION		UNIT COST	QTY.	UNIT		AMOUNT
1	***GATEWAY MODIFICATIONS***						
	COLISEUM WAY / HIGHWAY 880 GATEWAY		$ 150,000.00	1	EA	$	150,000
	COLISEUM WAY / 66TH AVENUE GATEWAY		$ 300,000.00	1	EA	$	300,000
	SAN LEANDRO / 50tTH AVENUE		$ 20,000.00	1	EA	$	20,000
					GATEWAY MODIFICATIONS SUBTOTAL	**$**	**470,000**
2	***STORM DRAIN AND SEWER***						
	STORM DRAIN MODIFICATIONS					$	2,650,000
	SEWER MODIFICATIONS					$	740,000
					STORM DRAIN AND SEWER SUBTOTAL	**$**	**3,390,000**
3	***SURFACE / STREETSCAPE***						
	REMOVE AC / RECOMPACT BASE		$ 9.00	110,000	SF	$	990,000
	PAVEMENT SECTION REPLACEMENT		$ 11.50	222,500	SF	$	2,560,000
	CONCRETE SIDEWALK	x50%	$ 8.00	111,000	SF	$	440,000
	NOTE:ASSUME 50% SIDEWALKS NEED RECONSTRUCTION						
	STREET LIGHTS		$ 3,000.00	24	EA	$	70,000
	TRAFFIC SIGNAL MOD'S (INCLUDE PED' CONTROL)		$ 50,000.00	3	EA	$	150,000
	SIGNAGE		$ 30,000.00	1	TIER	$	30,000
	STREET TREES		$ 400.00	427	EA	$	170,000
	LANDSCAPING		$ 5.00	55,500	SF	$	280,000
	STRIPING		$ 1.75	17,000	LF	$	30,000
	WROUGHT IRON FENCING		$ 50.00	8,500	LF	$	420,000
					SURFACE / STREETSCAPE SUBTOTAL	**$**	**5,140,000**

	TIER 1		
	LEVEL 1	$	470,000
	LEVEL 2	$	3,390,000
	LEVEL 3	$	5,140,000
	25% Contingency	$	2,250,000
	TIER 1 TOTAL	**$**	**11,250,000**

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Melrose - Coliseum Industrial Zone

Tier 2

45th Avenue
46th Avenue
54th Avenue

TIER 2

LEVEL	DESCRIPTION		UNIT COST	QTY.	UNIT	AMOUNT
2	***STORM DRAIN AND SEWER***					
	STORM DRAIN MODIFICATIONS					$ 330,000
	SEWER MODIFICATIONS					$ 90,000
					STORM DRAIN AND SEWER SUBTOTAL	**$ 420,000**
3	***SURFACE / STREETSCAPE***					
	GRIND / AC OVERLAY		$ 2.50	3,000	SF	$ 10,000
	REMOVE AC / RECOMPACT BASE		$ 9.00	11,300	SF	$ 100,000
	PAVEMENT SECTION REPLACEMENT		$ 11.50	26,900	SF	$ 310,000
	SIDEWALK	x50%	$ 8.00	4,900	SF	$ 20,000
	NOTE:ASSUME 50% SIDEWALKS NEED RECONSTRUCTION					
	STREET LIGHTS		$ 3,000.00	2	EA	$ 5,000
	SIGNAGE		$ 30,000.00	1	TIER	$ 30,000
	STREET TREES		$ 400.00	54	EA	$ 20,000
	LANDSCAPING		$ 5.00	2,450	SF	$ 10,000
	STRIPING		$ 1.75	2,100	LF	$ 5,000
	WROUGHT IRON FENCING		$ 50.00	1,000	LF	$ 50,000
					SURFACE / STREETSCAPE SUBTOTAL	**$ 560,000**

	TIER 2	
	LEVEL 2	$ 420,000
	LEVEL 3	$ 560,000
	25% Contingency	$ 250,000
	TIER 2 TOTAL	**$ 1,230,000**

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Melrose - Coliseum Industrial Zone

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Tier 3

53rd Avenue	**47th Avenue**
Julie Ann Way	**48th Avenue**
Kevin Court	**51st Avenue**
Independent Road	**52nd Avenue**

TIER 3

LEVEL	DESCRIPTION		UNIT COST	QTY.	UNIT	AMOUNT
2	***STORM DRAIN AND SEWER***					
	STORM DRAIN MODIFICATIONS					$ 1,680,000
	SEWER MODIFICATIONS					$ 470,000
					STORM DRAIN AND SEWER SUBTOTAL	**$ 2,150,000**
3	***SURFACE / STREETSCAPE***					
	SLURRY SEAL		$ 0.60	56,000	SF	$ 30,000
	GRIND / AC OVERLAY		$ 2.50	61,000	SF	$ 150,000
	REMOVE AC / RECOMPACT BASE		$ 9.00	69,100	SF	$ 620,000
	PAVEMENT SECTION REPLACEMENT		$ 11.50	24,400	SF	$ 280,000
	SIDEWALK	x50%	$ 8.00	47,700	SF	$ 190,000
	NOTE:ASSUME 50% SIDEWALKS NEED RECONSTRUCTION					
	STREET LIGHTS		$ 3,000.00	13	EA	$ 40,000
	SIGNAGE		$ 30,000.00	1	TIER	$ 30,000
	STREET TREES		$ 400.00	263	EA	$ 100,000
	LANDSCAPING		$ 5.00	23,850	SF	$ 110,000
	STRIPING		$ 1.75	10,400	LF	$ 20,000
	WROUGHT IRON FENCING		$ 50.00	5,200	LF	$ 260,000
					SURFACE / STREETSCAPE SUBTOTAL	**$ 1,830,000**

	TIER 3	
	LEVEL 2	$ 2,150,000
	LEVEL 3	$ 1,830,000
	25% Contingency	$ 1,000,000
	TIER 3 TOTAL	**$ 4,980,000**

	MELROSE - COLISEUM INDUSTRIAL ZONE	
	TIER 1	$ 11,250,000
	TIER 2	$ 1,230,000
	TIER 3	$ 4,980,000
	MELROSE - COLISEUM INDUSTRIAL ZONE TOTAL	**$ 17,460,000**

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2737 North Main Street, Suite 200
Walnut Creek, CA 94597

Oakland Industrial District
Tidewater Industrial Zone
Oakland, CA

Tier 1

High Street
Lesser Street
Oakport Street
Tidewater Avenue

ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST

TIER 1

LEVEL	DESCRIPTION		UNIT COST	QTY.	UNIT	AMOUNT
1	***GATEWAY MODIFICATIONS***					
	LESSER / OAKPORT STREET GATEWAY		$150,000.00	1	EA	$ 150,000
					GATEWAY MODIFICATIONS SUBTOTAL	**$ 150,000**
2	***STORM DRAIN AND SEWER***					
	STORM DRAIN MODIFICATIONS					$ 3,260,000
	SEWER MODIFICATIONS					$ 330,000
					STORM DRAIN AND SEWER SUBTOTAL	**$ 3,590,000**
3	***SURFACE / STREETSCAPE***					
	GRIND / AC OVERLAY		$ 2.50	113,500	SF	$ 285,000
	REMOVE AC / RECOMPACT BASE		$ 9.00	55,700	SF	$ 500,000
	PAVEMENT SECTION REPLACEMENT		$ 11.50	35,200	SF	$ 400,000
	CONCRETE SIDEWALK	x50%	$ 8.00	77,000	SF	$ 310,000
	NOTE:ASSUME 50% SIDEWALKS NEED RECONSTRUCTION					
	STREET LIGHTS		$ 3,000.00	30	EA	$ 90,000
	SIGNAGE		$ 30,000.00	1	TIER	$ 30,000
	STREET TREES		$ 400.00	241	EA	$ 100,000
	LANDSCAPING		$ 5.00	38,500	SF	$ 200,000
	STRIPING		$ 1.75	14,000	LF	$ 25,000
	WROUGHT IRON FENCING		$ 50.00	7,000	LF	$ 350,000
					SURFACE / STREETSCAPE SUBTOTAL	**$ 2,290,000**

TIER 1		
LEVEL 1		$ 150,000
LEVEL 2		$ 3,590,000
LEVEL 3		$ 2,290,000
	25% Contingency	$ 1,510,000
	TIER 1 TOTAL	**$ 7,540,000**

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Tidewater Industrial Zone

Tier 2

Howard Street
Jensen Street

TIER 2

LEVEL	DESCRIPTION		UNIT COST	QTY.	UNIT	AMOUNT
2	***STORM DRAIN AND SEWER***					
	STORM DRAIN MODIFICATIONS					$ 190,000
	SEWER MODIFICATIONS					$ 20,000
					STORM DRAIN AND SEWER SUBTOTAL	**$ 210,000**
3	***SURFACE / STREETSCAPE***					
	SLURRY SEAL		$ 0.60	5,700	SF	$ 5,000
	GRIND / AC OVERLAY		$ 2.50	18,000	SF	$ 45,000
	CONCRETE SIDEWALK	x50%	$ 8.00	7,500	SF	$ 30,000
	NOTE:ASSUME 50% SIDEWALKS NEED RECONSTRUCTION					
	STREET LIGHTS		$ 3,000.00	3	EA	$ 10,000
	SIGNAGE		$ 30,000.00	1	TIER	$ 30,000
	STREET TREES		$ 400.00	200	EA	$ 80,000
	LANDSCAPING		$ 5.00	3,750	SF	$ 20,000
	STRIPING		$ 1.75	6,600	LF	$ 10,000
	WROUGHT IRON FENCING		$ 50.00	1,000	LF	$ 50,000
					SURFACE / STREETSCAPE SUBTOTAL	**$ 280,000**

	TIER 2	
	LEVEL 2	$ 210,000
	LEVEL 3	$ 280,000
	25% Contingency	$ 130,000
	TIER 2 TOTAL	**$ 620,000**

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Tidewater Industrial Zone

Tier 3

Malat Street

TIER 3

LEVEL	DESCRIPTION		UNIT COST	QTY.	UNIT	AMOUNT
2	***STORM DRAIN AND SEWER***					
	STORM DRAIN MODIFICATIONS					$ 350,000
	SEWER MODIFICATIONS					$ 40,000
					STORM DRAIN AND SEWER SUBTOTAL	**$ 390,000**
3	***SURFACE / STREETSCAPE***					
	CONCRETE SIDEWALK	x50%	$ 8.00	3,300	SF	$ 15,000
	NOTE:ASSUME 50% SIDEWALKS NEED RECONSTRUCTION					
	STREET LIGHTS		$ 3,000.00	1	EA	$ 5,000
	SIGNAGE		$ 5,000.00	1	TIER	$ 5,000
	STREET TREES		$ 400.00	16	EA	$ 5,000
	LANDSCAPING		$ 5.00	1,650	SF	$ 10,000
	STRIPING		$ 1.75	600	LF	$ 5,000
	WROUGHT IRON FENCING		$ 50.00	300	LF	$ 15,000
					SURFACE / STREETSCAPE SUBTOTAL	**$ 60,000**

	TIER 3	
	LEVEL 2	$ 390,000
	LEVEL 3	$ 60,000
	25% Contingency	$ 110,000
	TIER 3 TOTAL	**$ 560,000**

	TIDEWATER INDUSTRIAL ZONE	
	TIER 1	$ 7,540,000
	TIER 2	$ 620,000
	TIER 3	$ 560,000

TIDEWATER INDUSTRIAL ZONE TOTAL **$ 8,720,000**

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Walnut Creek, CA 94597

Street Rehabilitation Methods

Concrete Pavement Rehabilitation (CPR):

Pavement Milling – For the purpose of this work, milling is a general term meaning removal of a pavement surface with cold planing equipment. Milling equipment should be capable of removing the pavement surface to the necessary depth. The equipment should be capable of milling the surface of one traffic lane in not more than two passes. Pavement surface repair should consist of milling the entire surface of the pavement in a longitudinal direction. Substantially the entire surface area of the pavement should be milled until the pavement surface on both sides of the transverse joints and all cracks are in the same plane and have the same surface texture, and the pavement meets the smoothness requirement. The finished surface should have a uniform, coarse texture, subject to approval of the Engineer.

Dowel Bar Retrofit (DBR) – A rehabilitation technique used to increase the load transfer capability of existing in-service jointed plain concrete pavement. Cut the slots using diamond saw slot cutters. Three dowel bars will be placed per wheel path, parallel to the wheel path. Slot preparation consists of (1) removing the concrete fins, (2) flattening the bottom, (3) cleaning the slots, and (4) caulking the joint. Small hand-held jackhammers are used to remove the fins. Dowels are to be lubricated with some type of bond breaker, and then inserted into the slots. Once inserted, apply a backfill material. The backfill materials should have similar thermal properties to the concrete, provide strong bond to the existing concrete, be fast setting, have little shrinkage, and develop strength to allow traffic in a short time.

Asphalt Concrete Maintenance and Repair:

Asphalt Slurry Seal – A Slurry Seal is cold mixed asphalt. It consists of a graded aggregate, a binder , fines and additives. It is a hard wearing surfacing for pavement preservation. Slurry Seal protects and preserves, extending pavement life. This results in a pavement that is better to drive on, look at and will cost less in the long run.

AC Grind and Overlay – grinding of existing asphalt concrete to smooth out bumps and cracks. If an existing pavement is cracked or provides inadequate structural support these defects will often reflect through even the best-constructed overlay and cause premature pavement failure in the form of cracks and deformations. To maximize an overlay's useful life, failed sections of the existing pavements should be patched or replaced and existing pavement cracks should be filled. Before overlaying, a tack coat

should be placed on an existing pavement to ensure adequate bonding of the overlay to the existing pavement surface. The existing pavement should be made as smooth as possible before being overlaid. Milling can be used to smooth an existing flexible pavement prior to flexible or rigid overlays. Rather than filling in low spots, as a leveling course does, milling removes the high points in an existing pavement to produce a relatively smooth surface. A hot mix asphalt concrete overlay is then applied to improve the ride quality and prolong service life.

Remove AC and Recompact Base – After the existing pavement has been removed, including all AC chips exceeding 1 inch in diameter and all other foreign material, the existing base shall be redistributed and recompacted to the lines, grades, cross sections and densities required by the Engineer. Proof rolling will be required. Any existing base material which is found to be unsuitable shall be removed and replaced with material of similar properties. An AC overlay will then be applied to the roadway.

Pavement Section Replacement – Full-depth repairs involve removal of the complete pavement section down to the subgrade or to an intermediate base layer that is intact, and then replacing the entire section. The following steps are involved:

- Mark the repair area
- Saw the pavement
- Jackhammer and remove the defective material
- Remove, replace, and compact the base
- Apply a tack coat (and prime coat if used)
- Place the patch material
- Compact the patch area
- Seal the patch

Appendix B

7/17/08

Pavement Assessment – Field Notes
Woodland – 81st Industrial Zone

Hegenberger Road

Condition:

- Good quality
- Small number of cracks and rough patches

Solution:

- Slurry Seal: 3272 sf

81st Avenue

Condition:

- Longitudinal and transverse cracking
- Alligator cracking
- Few depressions and potholes

Solution:

- Slurry seal: 66,000 sf
- Pavement Section Replacement: 8,800 sf

San Leandro Street

Condition:

- Concrete pavement, not AC
- Longitudinal and transverse cracking
- Faulting (Approx. every 15'), not all have vertical displacement, but most are at least ¼" wide
- Surface abrasion causing poor ride quality
- Section between 92nd Avenue and 98th Avenue, severe cracking and very poor ride quality

Solution:

- Slab Replacement with Dowel Bar Retrofit (DBR) in Truck Lanes: 528,000 sf

85th Avenue (North of San Leandro)

Condition:

- RR crossing not a smooth transition
- Road has cracks and dips between RR crossing and Amelia
- Good ride quality between Amelia and G

Solution:

- Slurry seal: 12,500 sf
- Grind and Overlay: 37,500 sf

Amelia (West of 85th)

Condition:

- Previous trenching and AC plugs are visible
- No visible depressions
- Sidewalks on all sides
- Section near 85th street cracking and provides poor ride quality

Solution:

- Slurry Seal: 21,600 sf
- Grind/overlay (mostly toward intersection): 2,400 sf

Amelia (East of 85th)

Condition:

- Road provides rough ride quality
- Cracking evident
- Turnaround at end of court is non-existent, need to build

Solution:

- Grind and overlay: 12,000 sf

92nd Avenue

Condition

- Alligator Cracking
- Curb uneven and very short at sections
- Intersection of 92nd and Commercial Business Driveway 854-860 uneven and cracked
- No sidewalk toward San Leandro, East Bound

Solution:

- AC Grind and Overlay: 27,000 sf
- Remove AC and Reconstruct Base at alligator cracking: 9,000 sf

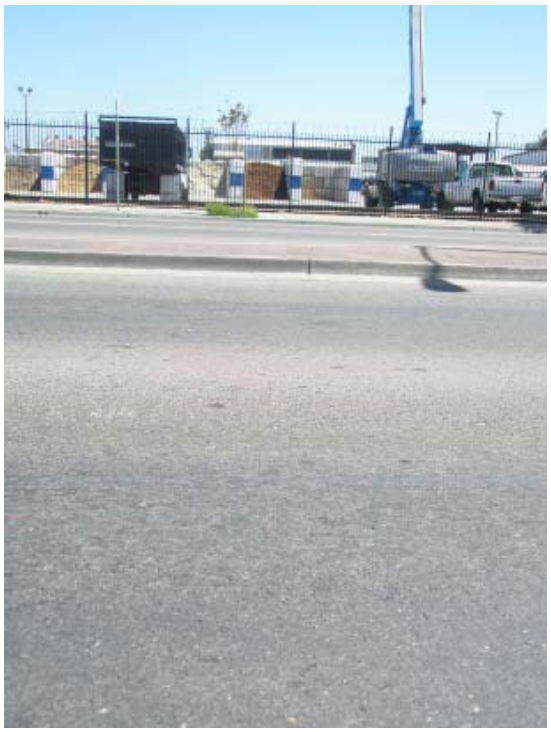
98th Avenue

Condition:

- Concrete shoulder with Curb/Gutter in good condition
- Road in good condition, ride quality good
- Few Random Potholes
- RR Crossing good

Solution:

- Could use slurry seal at select locations: 15,500 sf
- Section replacements for potholes: 3,100 sf



Railroad Avenue (Between 98th Ave. and Louisiana Street)

Condition:

- Potholes and deep cracking
- Uneven base failures
- No sidewalk / drainage features

Solution:

- Entire section of road needs reconstruction: 45,000 sf

Railroad Avenue (Between Louisiana St. and 85th St.)

Condition:

- Section of road is good
- Good ride quality
- Street is smooth and without cracking
- Good curb and gutter

Solution:

- Slurry seal selected sections: Slurry Seal, 7,200 sf

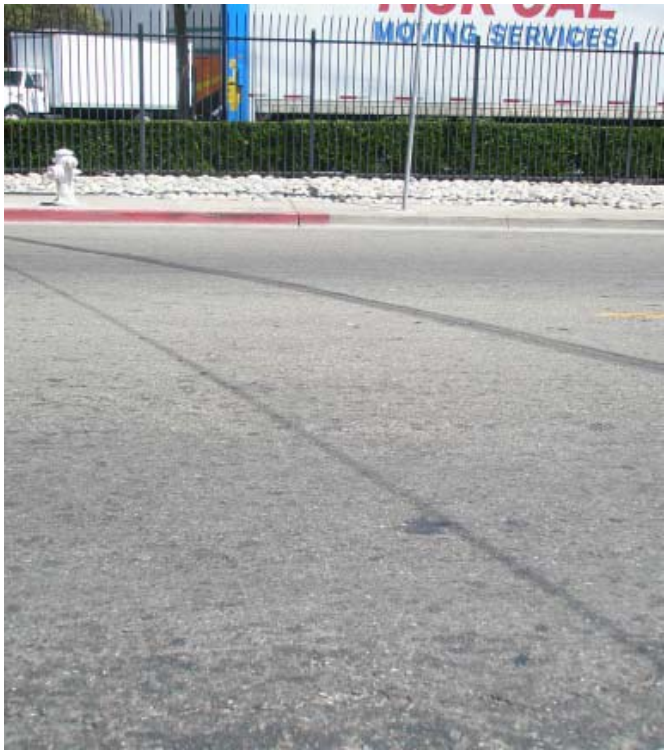
85th Avenue (south of San Leandro)

Condition:

- Sections in road are cracked and provide poor ride quality
- Between San Leandro and Railroad Street, Grind/Overlay
- Slurry seal for sections between Railroad Avenue and Edes Street
- Most of road does not need improvements

Solution:

- Slurry seal: 31,500 sf
- Grind and overlay: 31,500 sf



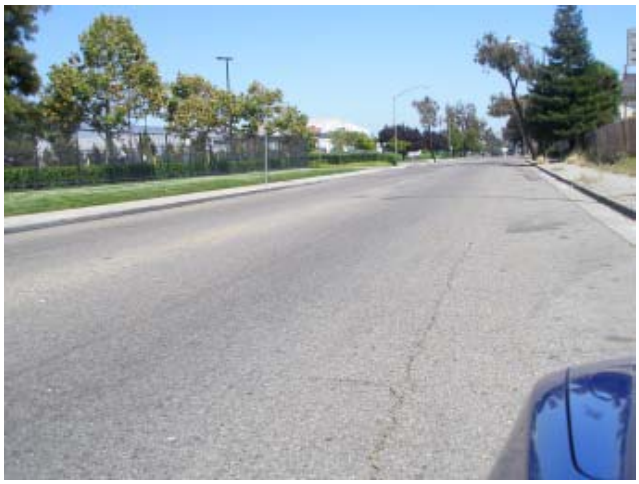
Edes Avenue

Condition:

- Intersection with 85th Avenue rough, could use grind and overlay
- Slurry seal after bad section, until middle of Fed Ex Building (midway between Phelps Street and Jones Street)
- Grind and overlay between Fed Ex Building and Jones
- Slurry seal between Jones and Clara Street
- Curb and Gutter in front of Fed Ex building is flat as standing water present

Solution:

- Slurry Seal: 26,400 sf
- Grind and Overlay: 39,600 sf



Clara Street (Small Section)

Condition:

- Cracking with rough surface

Solution:

- Grind and overlay: 7,000 sf

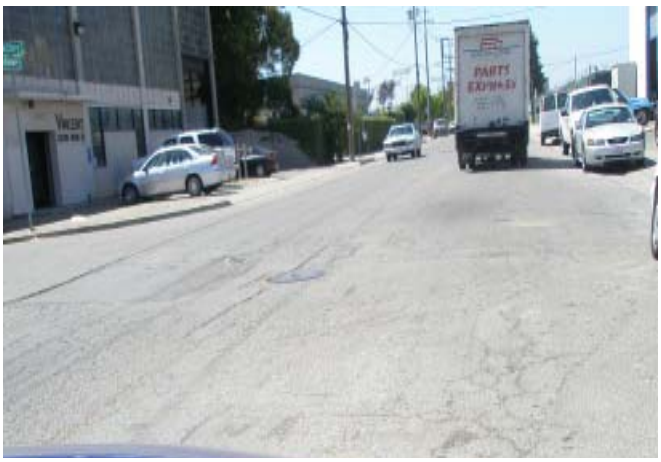
Baldwin Street

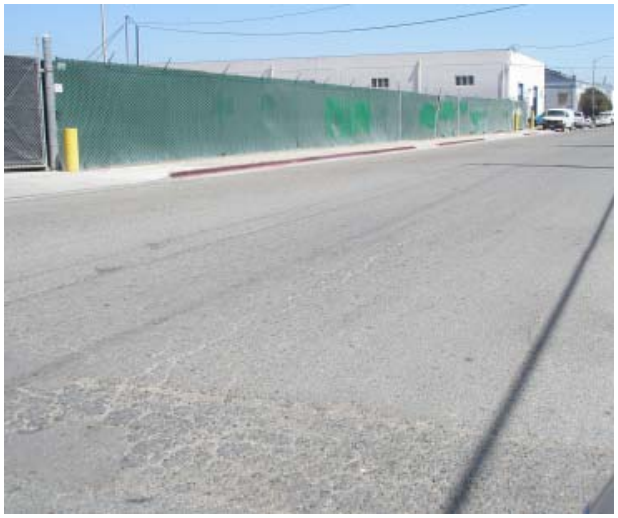
Condition:

- Longitudinal and alligator cracking
- Intersection of Baldwin and McClary; base failures and protruding manhole rim
- Depressions around manhole
- Asphalt raveling in front of Pack and Save, needs overlay

Solution:

- Grind and Overlay: 43,200
- Remove AC and recompact base: 28,800 sf





McClary Court

Condition:

- Surface good
- Ride quality rough in sections
- Manhole protruding
- Bad pothole at end of court, standing water visible inside
- Some evidence of isolated base failures

Solution:

- Grind and overlay: 3,770 sf
- 10% reconstruction for bad potholes and depressions: 754 sf

76th Avenue

Condition:

- Short section of road leading to gated commercial driveway
- No turnaround before gate

Solution:

- Review disposition of property

77th Avenue

Condition:

- This appears to be a private commercial driveway

Solution:

- Review disposition of property

Blaine Court

Condition:

- Concrete Pavement, not AC
- Large cracks and depressions, particularly approaching and through 85th intersection
- Curb and gutter broken in few areas

Solution:

- Mill surface and provide AC overlay:

Appendix C

8/4/08

Pavement Assessment – Field Notes
Melrose – Coliseum Industrial Zones

Coliseum Way (from 66th to Julie Ann Way)

Condition:

- Cracks in wheel path
- After railroad tracks there is lots of cracking
- Cracks/excessive lip at lip of gutter

Solution:

- Full replacement 100%

Coliseum Way (North of Julie Ann Way)

Condition:

- AC does not match lip of gutter well
- Depressions

Solution:

- Full replacement 100%

Observations

- No parking on road, truck loading zone.

Coliseum Way (North of 50th)

Condition:

- Lots of cracks that are very wide
- Edge of pavement is abrupt on north side

Solution:

- Grind and Overlay 75%
- Full Replacement 25%

Observations

- No sidewalk on one side

Independent Rd (East)

Condition:

- Alligator Cracking
- Large Potholes and AC erosion

Solution:

- Slurry Seal at first section, halfway down past loading docks.
- Slurry Seal in Court

Observations

- Trucks parking on both sides of street.

Independent Rd (West)

Condition:

- Random pot holes
- Alligator cracked at edge of 3'gutter

Solution:

- Remove AC and recompact base.

Observations

- West Independent Rd, multiple trucks in front of sign company.
- One long driveway on both sides of the street
- Flat crown
- Loading docks on back side
- Cul-de-sac fronts up against loading docks.

Kevin Ct.

Condition:

- AC adjacent to lip of gutter is cracked for first half of street.

Solution:

- AC overlay or full depth repair by lip of gutter 20%
- Slurry seal remainder 80%

Observations

- Driveway for first part of street. Loading docks are off road.
- At intersection of Coliseum Way, there is a clear line of where a previous overlay of Coliseum Way has stopped.

Julie Ann Way (East)

Condition:

- Large crack down the middle.
- Uneven lip of gutter

Solution:

- Grind/Overlay 75%
- Slurry Seal 25%

Observations

- Loading docks on south side
- Trailers parked at Cul de sac

Julie Ann Way (West)

Condition:

- Large crack down the middle.

Solution:

- Grind/Overlay 85%
- Intersection of Coliseum Way needs a full section replacement 15%

Observations

- Wonder Bread has multiple trucks parked on side of road
- Intersection of Coliseum Way is bad

50th

Condition:

- Crack in middle of road(West of Coliseum)
- 8th and 50th very bad condition, EP, no curb and gutter

Solution:

- Full replacement east of 8th street

Observations

- Standard gutter, 2ft
- Perpendicular parking adjacent to Pottery wholesaler.
- Not much heavy truck traffic.
- Stone distributor
- No turn around with K rail at end.
- Curb and Gutter needed on South side
- Alta Building Materials has lots of truck traffic before rail crossing
- Rail crossing is very steep
- Entire area bounded by 50th, 8th, and San Leandro is in poor condition.

8th

Condition:

- Alligator cracking
- Flat crown
- Uneven edge of pavement
- Undulating pavement

Solution:

- 50% Pavement Section Replacement
- 50% AC removal, recompact base

Observations

- 15' from EP to fence or building – this area is dirt
- EP with no curb and gutter
- Trucks lined up everywhere
- Perpendicular parking the entire stretch of road.
- Parking area would be helpful with small sidewalk

54th

Condition:

- Lots of cracks

Solution:

- Full section replacement

Observations

- AC to driveway with catch basins in corner
- Drainage does not look ideal
- Not green on pavement

53rd

Condition:

- Center of street bad
- Alligator cracks

Solution:

- AC removal and recompact base

Observations

- Roofing company
- Parking filled on both sides of street
- Fork lifts loading trucks in middle of street

52nd

Condition:

- Some potholes

Solution:

- Half full replacement (towards San Leandro)
- Half AC replacement

Observations

- Residential Area

51st

Condition:

- Some potholes

Solution:

- Half full replacement (towards San Leandro)
- Half AC replacement

Observations

- Residential Area

49th

Condition:

- Bad pot holes at end

Solution:

- Full replacement

Observations

- Paper recycling plant

- Cars parked parallel on north and perpendicular on south and
- Red, not yellow like pavement exhibit.
- Everything fronts on this street and there is a concrete parking strip

47th

Condition:

- Intersection at San Leandro is not very good because of railroad track

Solution:

- Grind and overlay at rail road track 15%
- Slurry seal for rest of street. 85%

Observations

- Unauthorized street sign
- Empty load
- Small AC driveways with gates

46th

Condition:

- Bad

Solution:

- Full Section

Observations

- Forklifts loading in street
- Trucks

45th

Condition:

- Cracking
- Curb and gutter not very good

Solution:

- AC replacement 80%
- Grind/Overlay 20%

Observations

- Car chopped in half
- Parking along entire stretch of street.

San Leandro

Condition:

- Cracks longitudinal
- Towards 66th, the condition is not Green

Solution:

- Dowel Bar Retrofit

Observations

- Concrete with 15' score marks

66th

Condition:

- Alligator cracking until first railroad crossing pavement markers
- Cracks in wheel path
- Pot holes after railroad crossing

Solution:

- Reconstruct AC section, recompact base.
- Slurry seal until crossing
- After crossing full section replacement

Observations

8/4/08

Pavement Assessment – Field Notes

Jensen

Condition:

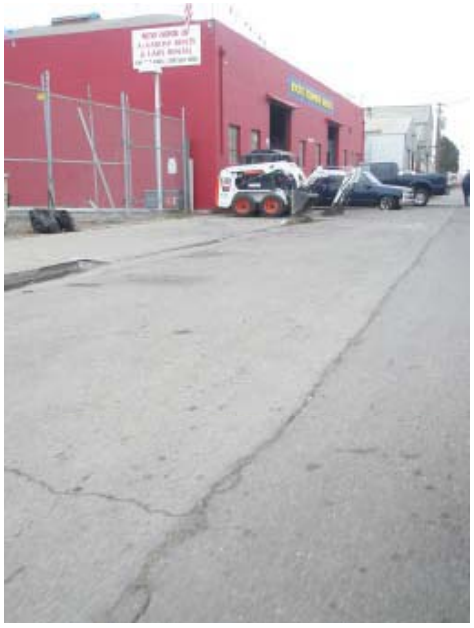
- Pavement in decent condition, but EP is not defined

Solution:

- Grind and overlay

Observations

- Marble, Granite, Stone wholesale at end of street= lots of truck traffic
- AC overlays in parking area on private property
- Parking is perpendicular at the corner of Jensen and High Street
- Heavy equipment rental at end of street



Oakport

Condition:

- Lots of alligator cracking in middle of the street

Solution:

- AC replacement/Base recompaction 2/3rds
- 1/3rd full replacement in center stretch

Observations

- Recent AC overlay

Lesser St.

Condition:

- Lots of alligator cracking in middle of the street

Solution:

- Grind and Overlay between Malat and Oakport St.
- AC removed/recompact base west of Malat halfway to Tidewater
- Grind and Overlay west of half towards Tidewater

Observations

- Parallel parking the entire street has not impacted the AC
- ~5' gutter
- Traveling east is cracked more.

Malat St.

Condition:

- Good condition

Solution:

- No action required

Observations

- Parking on both sides with cul-de-sac

Tidewater

Condition:

- Condition is poor near Lesser but improves as you travel north.

Solution:

- Grind and Overlay
- Some full-section replacement

Observations

- No curb and gutter
- Railroad track directly on side of road
- 20’ from EP to fence

High Street

Condition:

- Cracked in wheel path
- Cracking by 1.5’/ 6” gutter
- Alligator Cracking east of Wattling Street

Solution:

- AC replacement
- Full replacement east of Wattling Street

Observations

Howard

Condition:

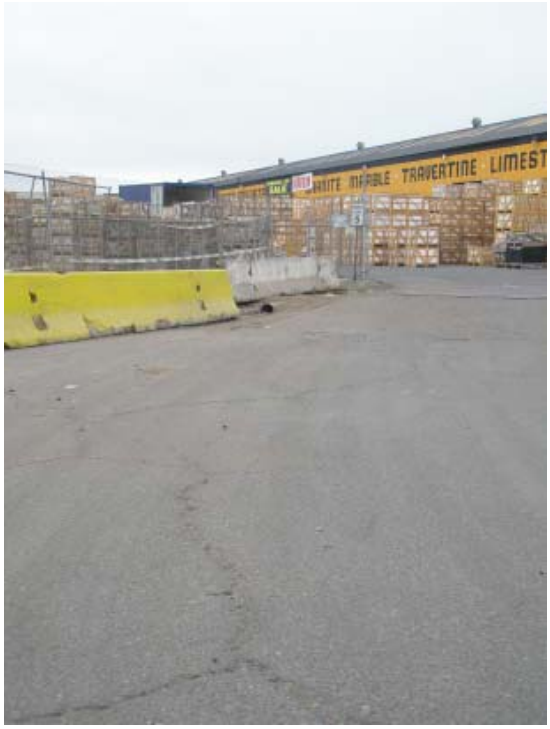
- Cracking in the middle

Solution:

- Grind and Overlay

Observations

- EP not well defined
- Residential homes at the end
- Not much truck traffic
- Parallel parking on both sides/perpendicular parking at end



7/22/08

Lighting Analysis
Woodland – 81st Street, Oakland
Site Visit 7/22/08

Analysis by Street

Hegenberger Street

- Existing lights every 100' approx.
- Both sides of street with light poles
- Lit well, does not need additional lighting

San Leandro

- Existing lights every 175-200' approx. alternating on both sides on street
- Lit well, does not need additional lighting.
- Lights on street light poles on north side of street (under BART line), lights on utility poles on south side of street
- At least 13 street lights are not operational
- Very dark at RR crossing, lights need to be fixed
- Street lighting adequate with all lights operational

81st Avenue

- Existing lights every 200' approx.
- Lights only on east side of street, 2 lights from each utility pole (cobra head element on utility poles)
- Private commercial lights on right side of street
- At least 2 lights are out and need repair
- Street lighting adequate with all lights operational

85th Avenue (North of San Leandro)

- Existing lights every 175' approx. on west side of street
- Lights located on utility poles on entire section of street
- 5 lights are not operational
- Street lighting adequate with all lights operational

98th Avenue (North of San Leandro, Out of scope)

- Existing lights spaced between 100' and 200' alternating on both sides of street
- Lights on street light poles on both side of street
- At least 4 lights not operational
- Street lighting adequate with all lights operational

92nd Avenue

- Existing lights every 150-175' approx. on west side of road
- 4 lights not operational in a row, very dark in area
- By viewing the lights that are on, the existing one side of lights is adequate to light entire roadway with all lights are operational

98th Avenue (South of San Leandro)

- Existing lights on west side of street and in medium, with those in the medium having cobra heads covering both directions of traffic. Light spacing every 150'-175'
- 1 light on corner is not operational
- Overall, very well lit

Railroad Avenue

- Existing lights every 100-200' on south side of road
- No other lights from commercial buildings in the area, lighting not as bright as in other areas. Should replace all lights on road to enhance brightness
- At least 2 lights not operational
- Street lighting adequate with all lights operational

Blaine Street

- Existing lights spaced every 100' on right side of street (looking toward end of court)
- 2 out of 4 lights are not operational
- Surrounding buildings at end of court have floodlights, but the lighting from the street lights is not very bright. Could use at least one more light pole

Amelia Street (West of 85th Avenue)

- Existing lights on both sides of street spaced every 200' per side, but alternating every 100' between sides
- Light on corner of Amelia and 85th is not operational
- Street lighting adequate with all lights operational

Amelia Street (East of 85th Avenue)

- Existing lights spaced 125' apart
- 2 lights on entire court, 1 is not operational
- Street lighting adequate with all lights operational

85th Avenue (South of San Leandro)

- Between Baldwin and San Leandro, lights only on east side of street spaced at 125' approx.
- Lights alternating on both sides of street for 650' section below Baldwin Street spaced at 200' per side
- Lights below Enterprise Way on east side of street spaced every 125' approx.
- 1 light not operational near intersection of Railroad and 85th
- Lights on utility poles
- After section, lights continue only on east side of street
- Street lighting adequate

Edes Street

- Existing lights alternating on both sides of street, spaced every 200-250' per side.
- Corner of Edes and 85th, one light is not operational
- Light out in front of FedEx building
- Street lighting adequate with all lights operational

Baldwin Street

- Lights located on every other utility pole on south side of street every 150-175' approx.
- At least three lights are not operational
- Street lighting adequate if all lights are operational,

McClary Court

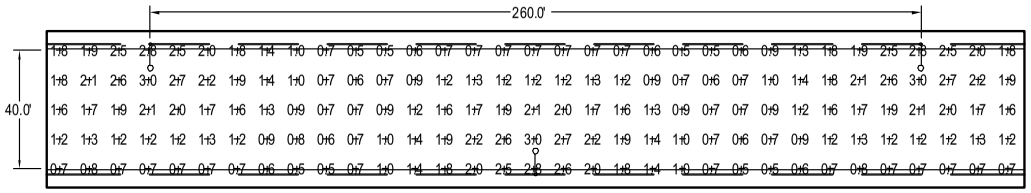
- Existing lights every 175' approx.
- 2 out of 4 lights are out, causing the court to be very dark. Needs to be repaired
- Street lighting adequate with all lights operational

76th Street

- One light, but it is not operational
- End of street leads into gated commercial driveway.
- No turnaround at end of court

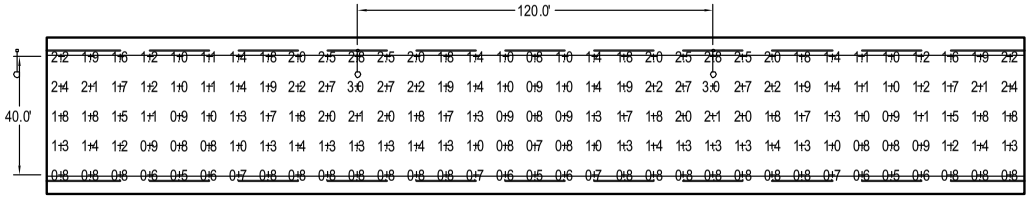
At least 46 street lights are out

Appendix D



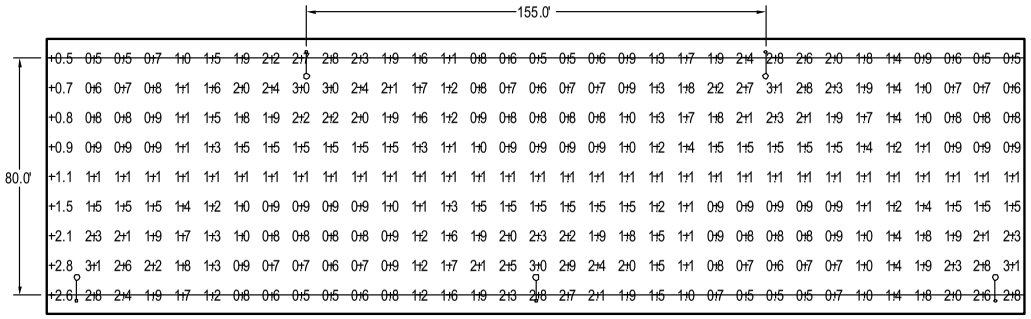
40' TC STAGGERED TEST
330 POINTS
HORIZONTAL FOOTCANDLES
AVERAGE 1.4
MAXIMUM 3.0
MINIMUM 0.5
AVG:MIN 2.72
MAX:MIN 6.00
COEF VAR 0.50

40' STREET - STAGGERED STANDARD
MINIMUM LIGHT POLE SPACING 260'



40' TC TEST
330 POINTS
HORIZONTAL FOOTCANDLES
AVERAGE 1.4
MAXIMUM 3.0
MINIMUM 0.5
AVG:MIN 2.79
MAX:MIN 6.00
COEF VAR 0.43

40' STREET - SINGLE SIDE STANDARD
MINIMUM LIGHT POLE SPACING 120'



80' TC STAGGERED TEST
297 POINTS
HORIZONTAL FOOTCANDLES
AVERAGE 1.4
MAXIMUM 3.1
MINIMUM 0.5
AVG:MIN 2.77
MAX:MIN 6.20
COEF VAR 0.46
UNIFGRAD 1.56

80' STREET - STAGGERED STANDARD
MINIMUM LIGHT POLE SPACING 125'

BKF
2737 NORTH MAIN STREET
SUITE 200
WALNUT CREEK, CA 94596
925-940-2200
925-940-2259 (FAX)

MINIMUM LIGHTING STANDARDS
OAKLAND INDUSTRIAL DISTRICTS

CITY OF OAKLAND ALAMEDA COUNTY CALIFORNIA

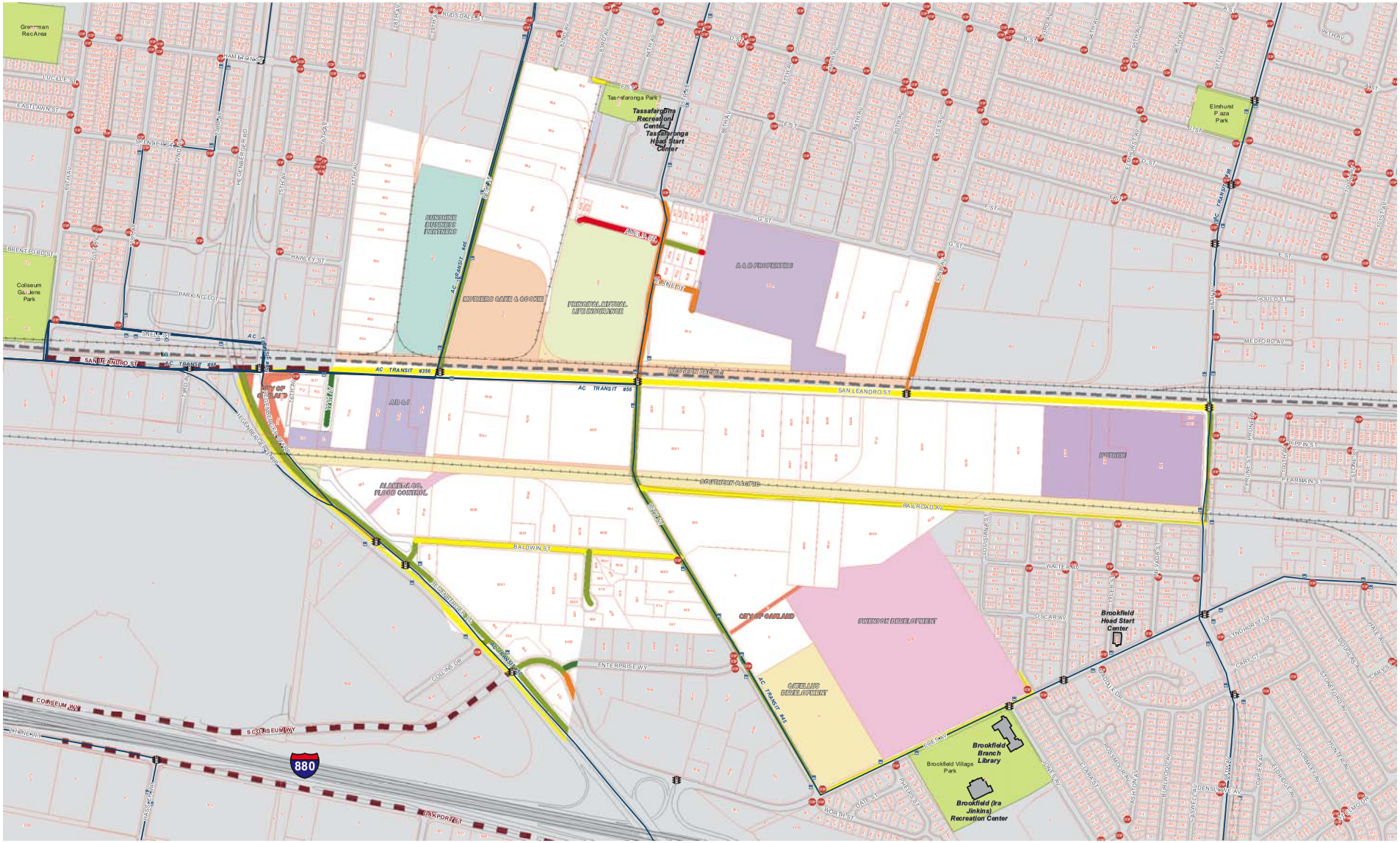
No.	Revisions

Date: 05/15/08
Scale: 1"=40'
Design: JW
Drawn: BJ
Approved:
Job No: 20070019

Drawing Number: 1

1 OF 1

DRAWING NAME: K:\Eng07\070019\DWG\DWG-IN\2008-06-06 AutoLUX Vida\Oakland AutoLUX Analysis - Final.dwg
PLOT DATE: Mar 2008
PLOTTED BY: Jack



WOODLAND - 81ST AVE INDUSTRIAL ZONE

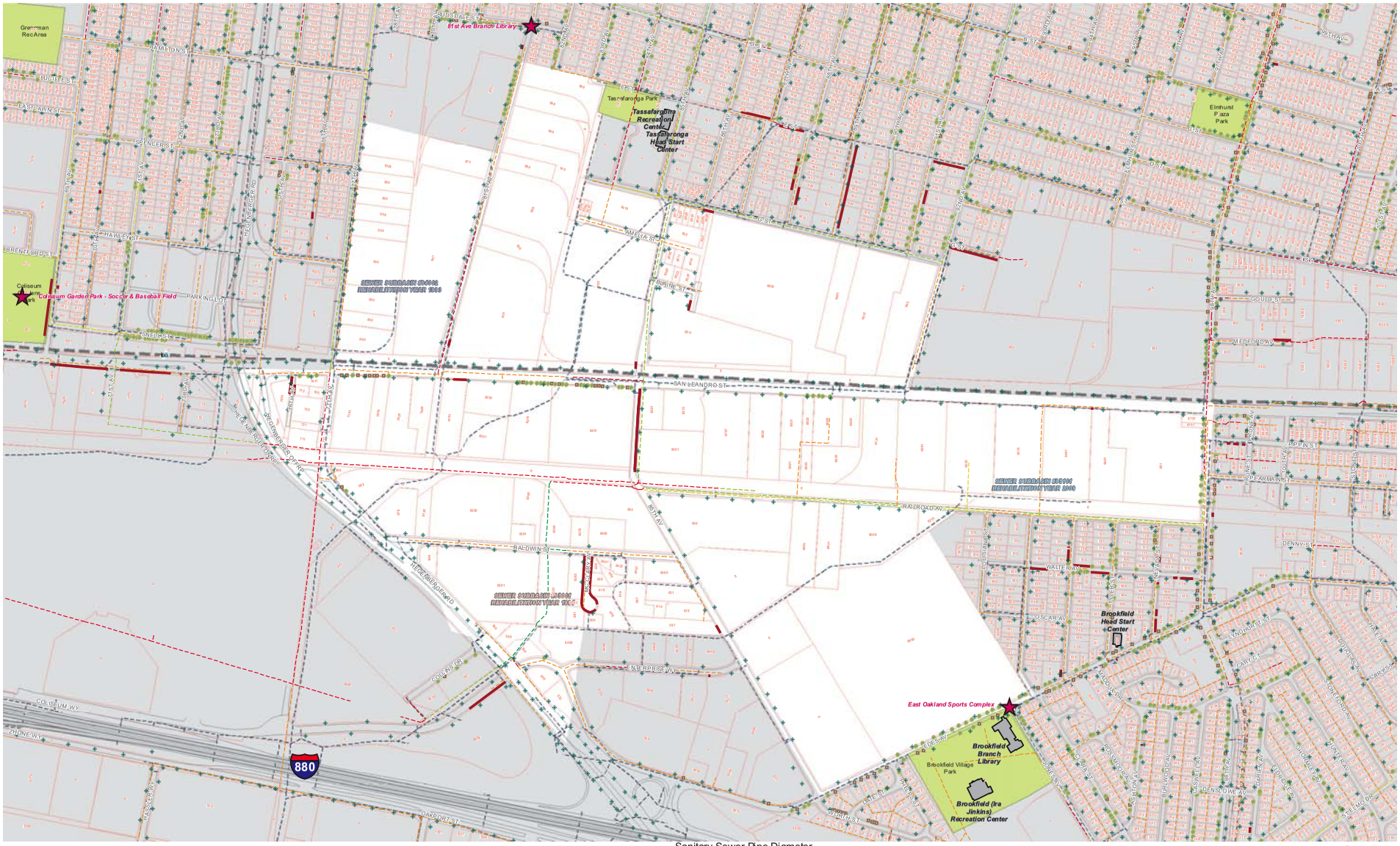
TRANSPORTATION, PAVEMENT, PROPERTY OWNERS

Legend

- City Facilities
- Selected Property Owners
- COLISEUM WY Streets on 5-Year Paving Plan
- Traffic Signals
- Stop Signs
- AC Transit Stop
- AC Transit Line
- BART Line
- BART Line
- Pavement Condition: Worst → Best

0 300 600 Feet

Appendix E



WOODLAND - 81ST AVE INDUSTRIAL ZONE

RIGHT-OF-WAY, SEWER & STORM DRAIN, CITY PROJECTS

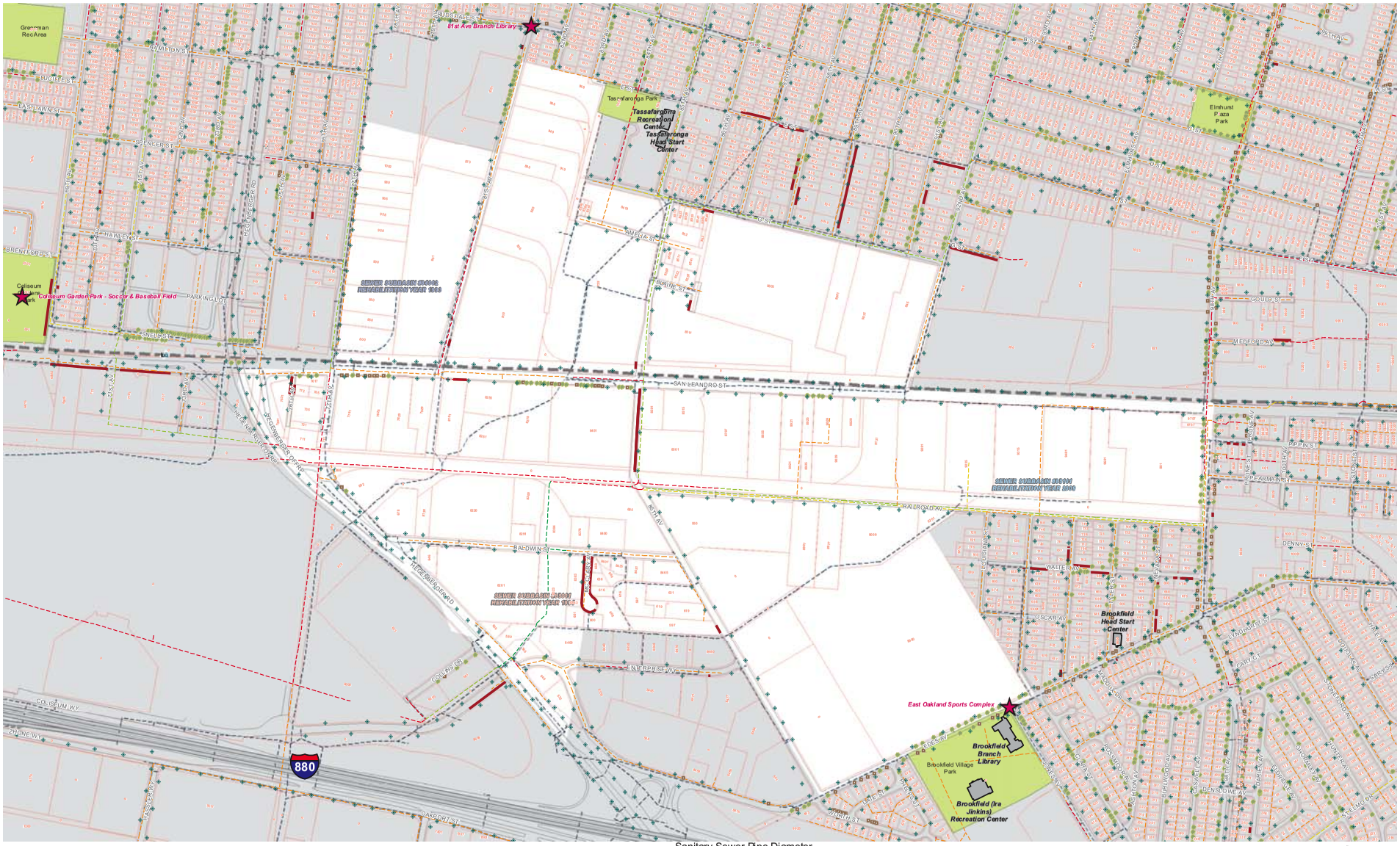
Legend

- City Facilities
- City Projects
- Storm Drain
- Street Lights
- Street Trees
- Tree Wells
- No Sidewalk

Sanitary Sewer Pipe Diameter
- N/A
- 0.000001 - 12.000000
- 12.000001 - 21.000000
- 21.000001 - 39.000000
- 39.000001 - 80.000000

- Sewer Rehabilitation Subbasin #84002
- Sewer Rehabilitation Subbasin #85001
- Sewer Rehabilitation Subbasin #85101

0 300 600 Feet



WOODLAND - 81ST AVE INDUSTRIAL ZONE

RIGHT-OF-WAY, SEWER & STORM DRAIN, CITY PROJECTS

Legend

- City Facilities
- City Projects
- Storm Drain
- Street Lights
- Street Trees
- Tree Wells
- No Sidewalk

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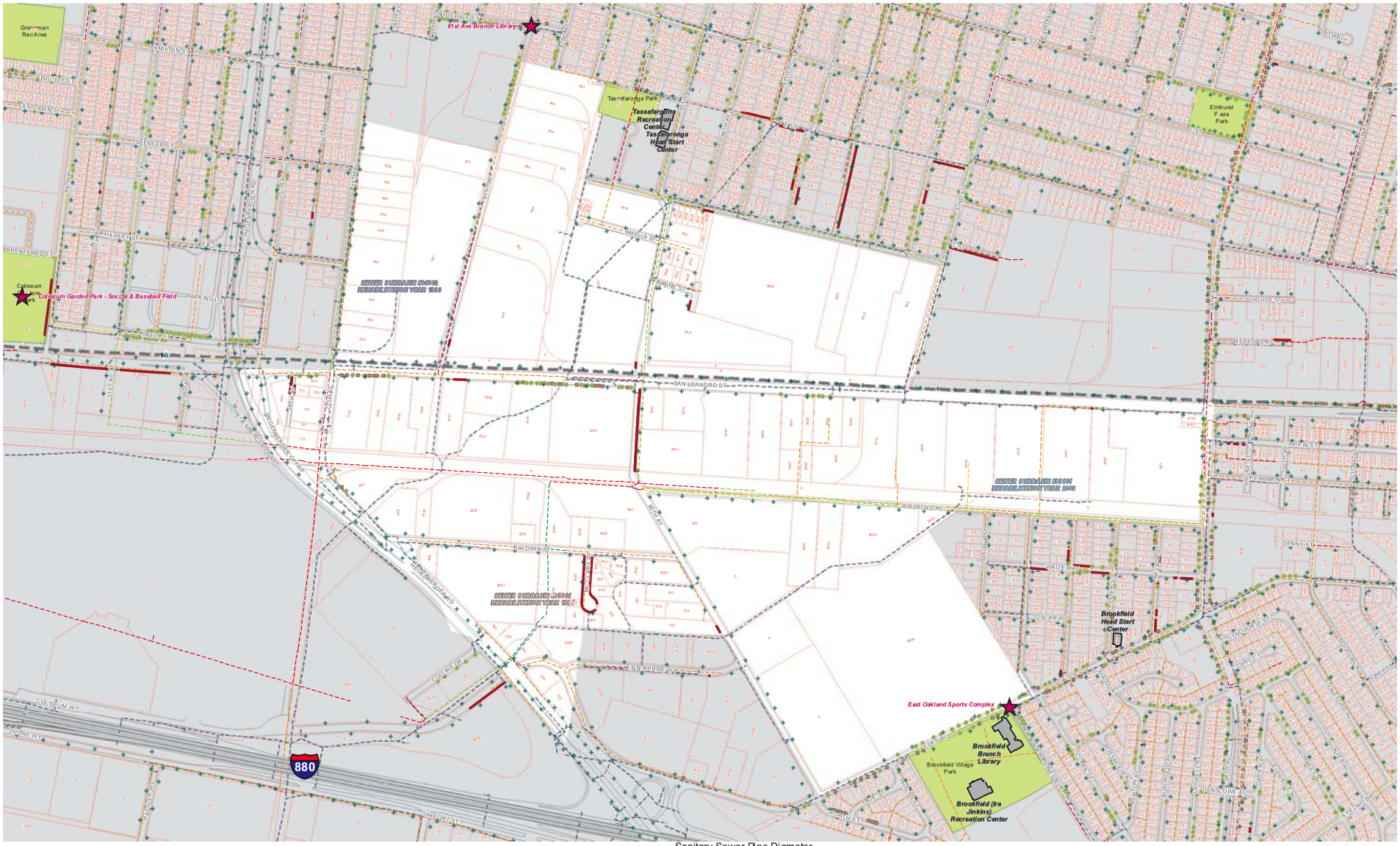
- 12.000001 - 21.000000
- 21.000001 - 39.000000
- 39.000001 - 80.000000

- Sewer Rehabilitation Subbasin #84002
- Sewer Rehabilitation Subbasin #85001
- Sewer Rehabilitation Subbasin #85101

0 300 600 Feet



WOODLAND - 81ST AVE INDUSTRIAL ZONE

RIGHT-OF-WAY, SEWER & STORM DRAIN, CITY PROJECTS

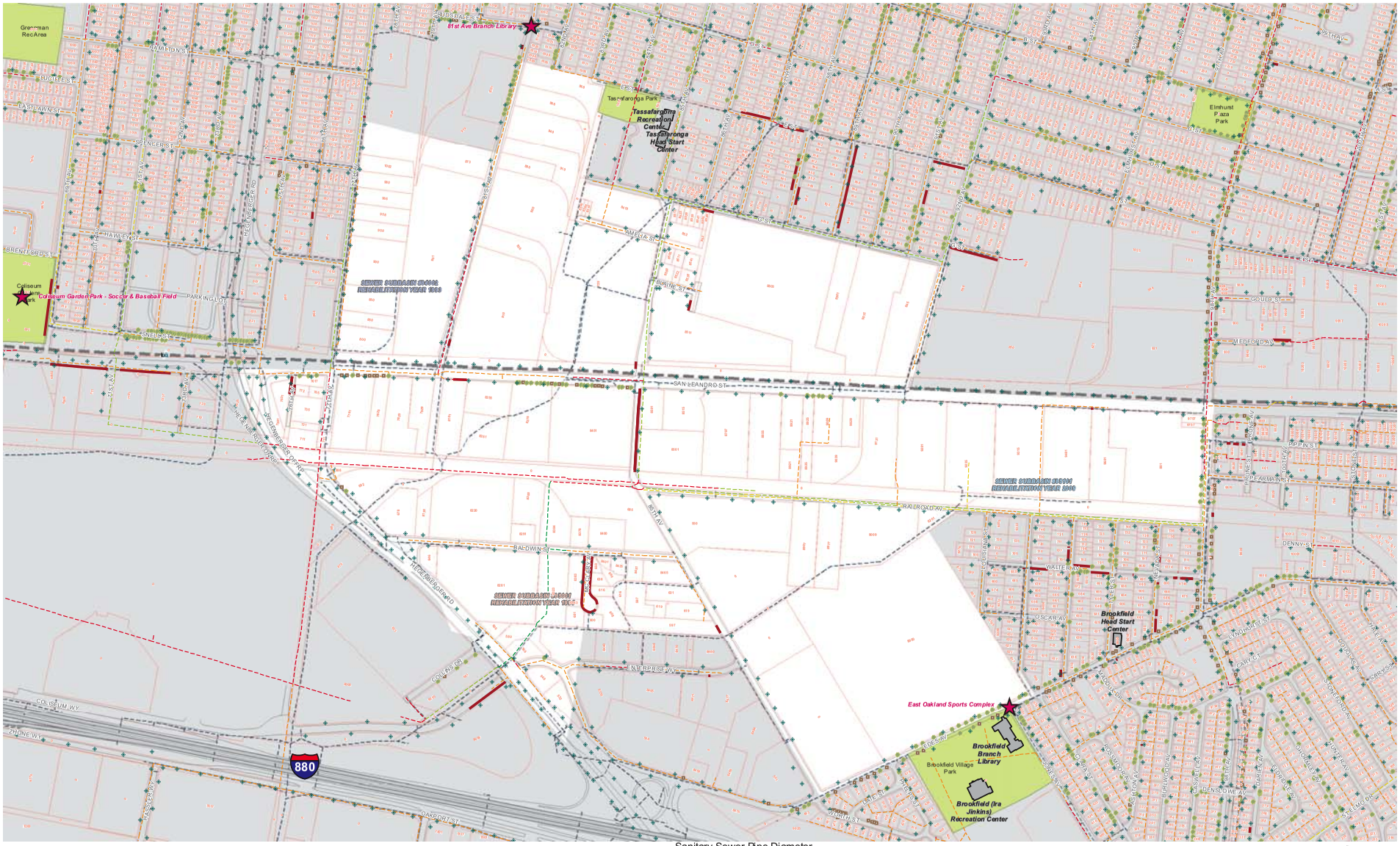
Legend

- City Facilities
- City Projects
- Storm Drain
- Street Lights
- Street Trees
- Tree Wells
- No Sidewalk

Sanitary Sewer Pipe Diameter
- N/A
- 0.000001 - 12.000000
- 12.000001 - 21.000000
- 21.000001 - 39.000000
- 39.000001 - 80.000000

- Sewer Rehabilitation Subbasin #84002
- Sewer Rehabilitation Subbasin #85001
- Sewer Rehabilitation Subbasin #85101

0 300 600 Feet



WOODLAND - 81ST AVE INDUSTRIAL ZONE

RIGHT-OF-WAY, SEWER & STORM DRAIN, CITY PROJECTS

Legend

- City Facilities
- City Projects
- Storm Drain
- Street Lights
- Street Trees
- Tree Wells
- No Sidewalk

Sanitary Sewer Pipe Diameter
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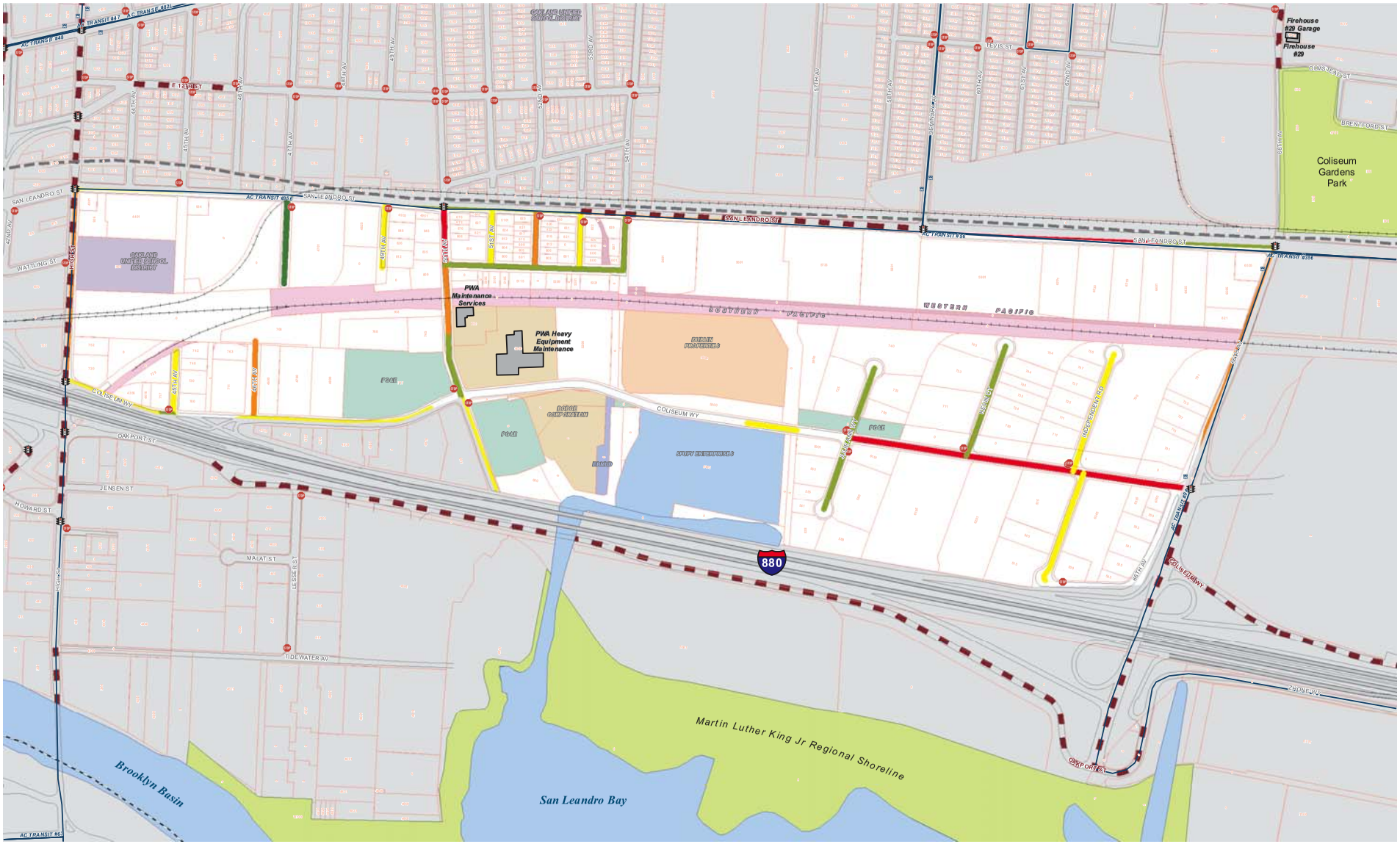
- 12.000001 - 21.000000
- 21.000001 - 39.000000
- 39.000001 - 80.000000

- Sewer Rehabilitation Subbasin #84002
- Sewer Rehabilitation Subbasin #85001
- Sewer Rehabilitation Subbasin #85101

0 300 600 Feet



MELROSE - COLISEUM INDUSTRIAL ZONE

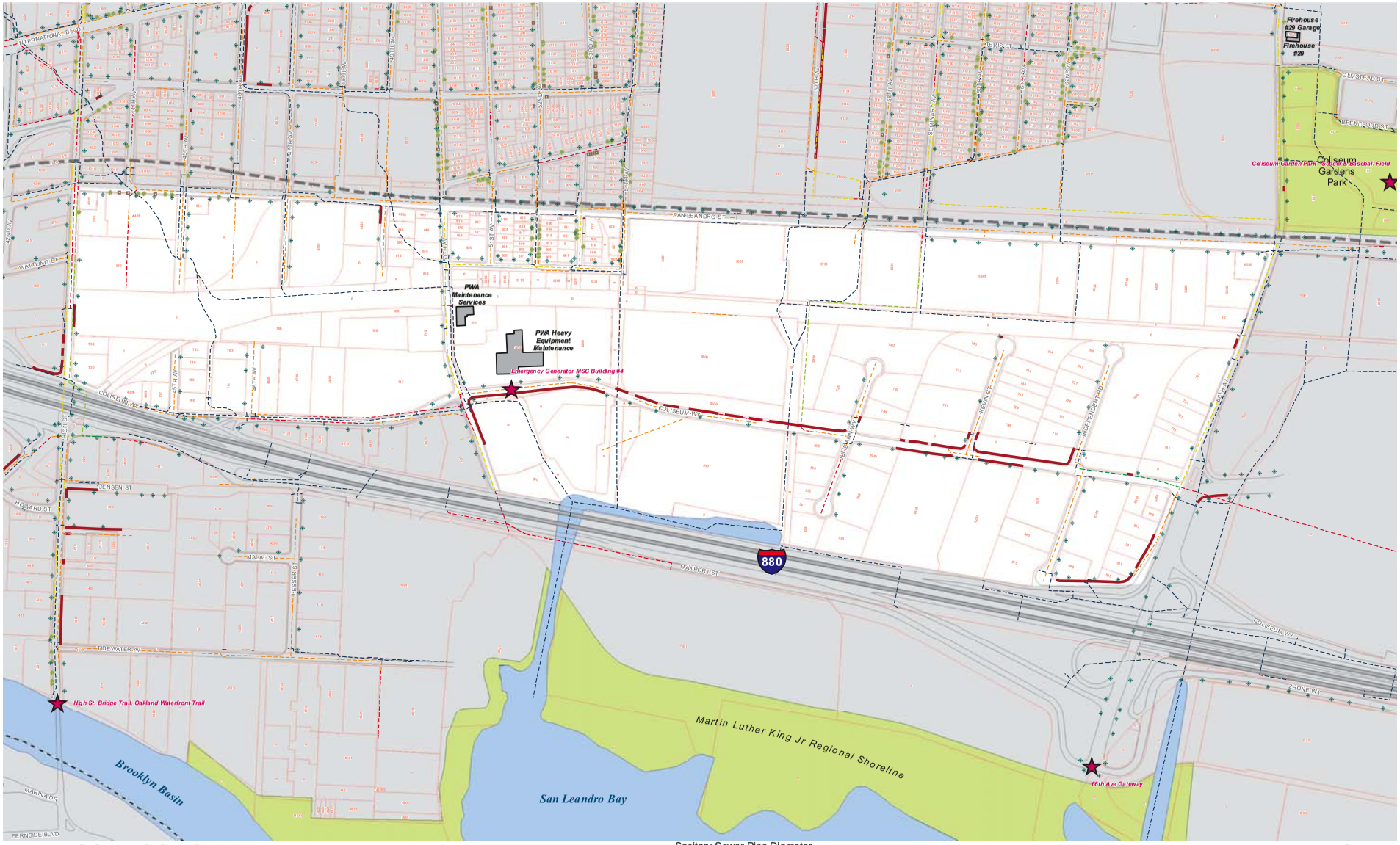
TRANSPORTATION, PAVEMENT, PROPERTY OWNERS

Legend

- City Facilities
- Selected Property Owners
- COLISEUM WY Streets on 5-Year Paving Plan
- Traffic Signals
- Stop Signs
- AC Transit Stop
- AC Transit Line
- BART Line
- BART Line
- Pavement Condition: Worst → Best

0 250 500 Feet

Appendix F



MELROSE - COLISEUM INDUSTRIAL ZONE

RIGHT-OF-WAY, SEWER & STORM DRAIN, CITY PROJECTS

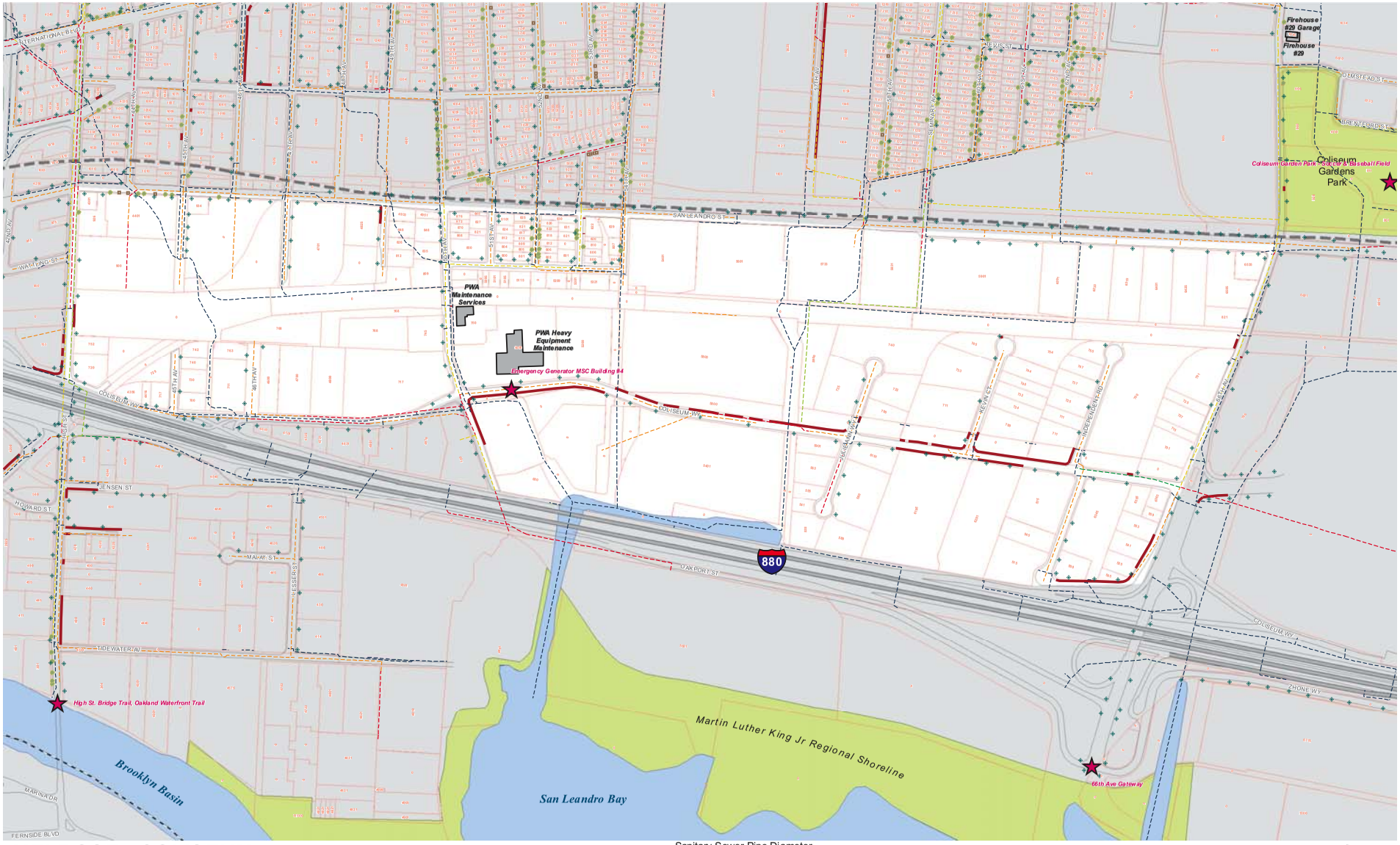
Legend

- City Facilities
- City Projects
- Storm Drain
- Street Lights
- Street Trees
- Tree Wells
- No Sidewalk

Sanitary Sewer Pipe Diameter
- N/A
- 0.000001 - 12.000000
- 12.000001 - 21.000000
- 21.000001 - 39.000000
- 39.000001 - 80.000000

Sewer Rehabilitation Subbasin #82001

0 250 500 Feet



MELROSE - COLISEUM INDUSTRIAL ZONE

RIGHT-OF-WAY, SEWER & STORM DRAIN, CITY PROJECTS

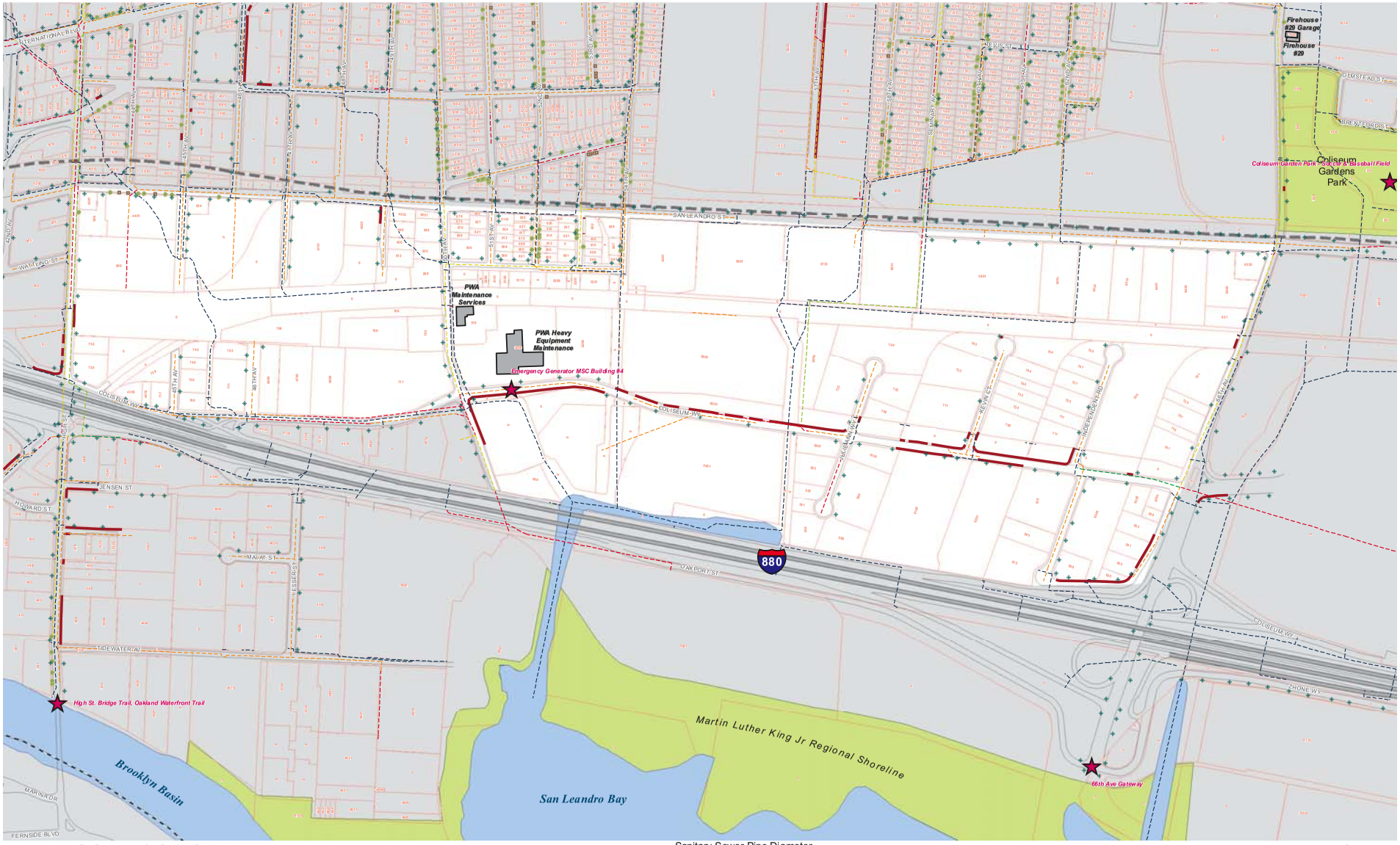
Legend

- City Facilities
- City Projects
- Storm Drain
- Street Lights
- Street Trees
- Tree Wells
- No Sidewalk

Sanitary Sewer Pipe Diameter
- N/A
- 0.000001 - 12.000000
- 12.000001 - 21.000000
- 21.000001 - 39.000000
- 39.000001 - 80.000000

Sewer Rehabilitation Subbasin #82001

0 250 500 Feet



MELROSE - COLISEUM INDUSTRIAL ZONE

RIGHT-OF-WAY, SEWER & STORM DRAIN, CITY PROJECTS

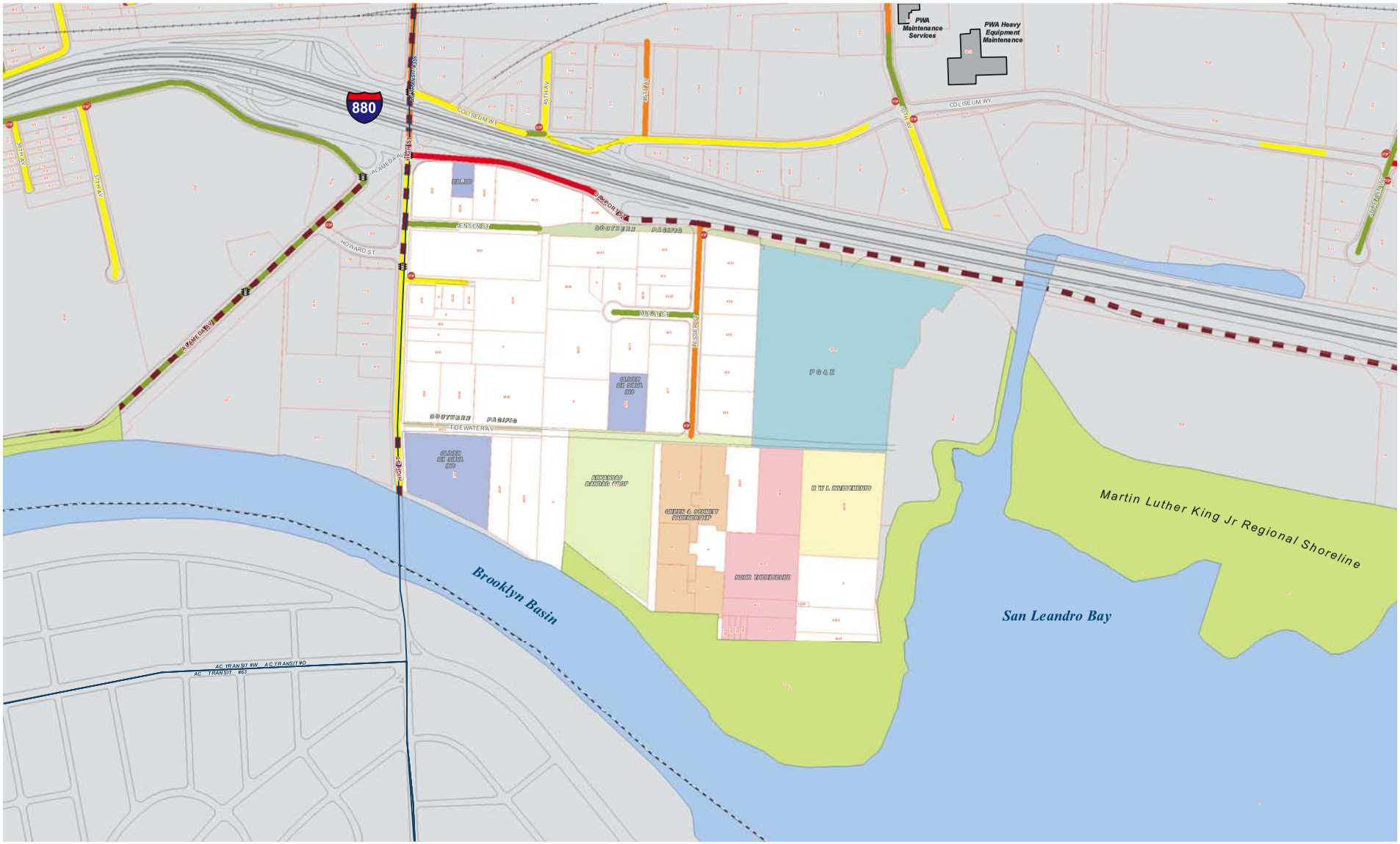
Legend

- City Facilities
- City Projects
- Storm Drain
- Street Lights
- Street Trees
- Tree Wells
- No Sidewalk

Sanitary Sewer Pipe Diameter
- N/A
- 0.000001 - 12.000000
- 12.000001 - 21.000000
- 21.000001 - 39.000000
- 39.000001 - 80.000000

Sewer Rehabilitation Subbasin #82001

0 250 500 Feet



TIDEWATER INDUSTRIAL ZONE

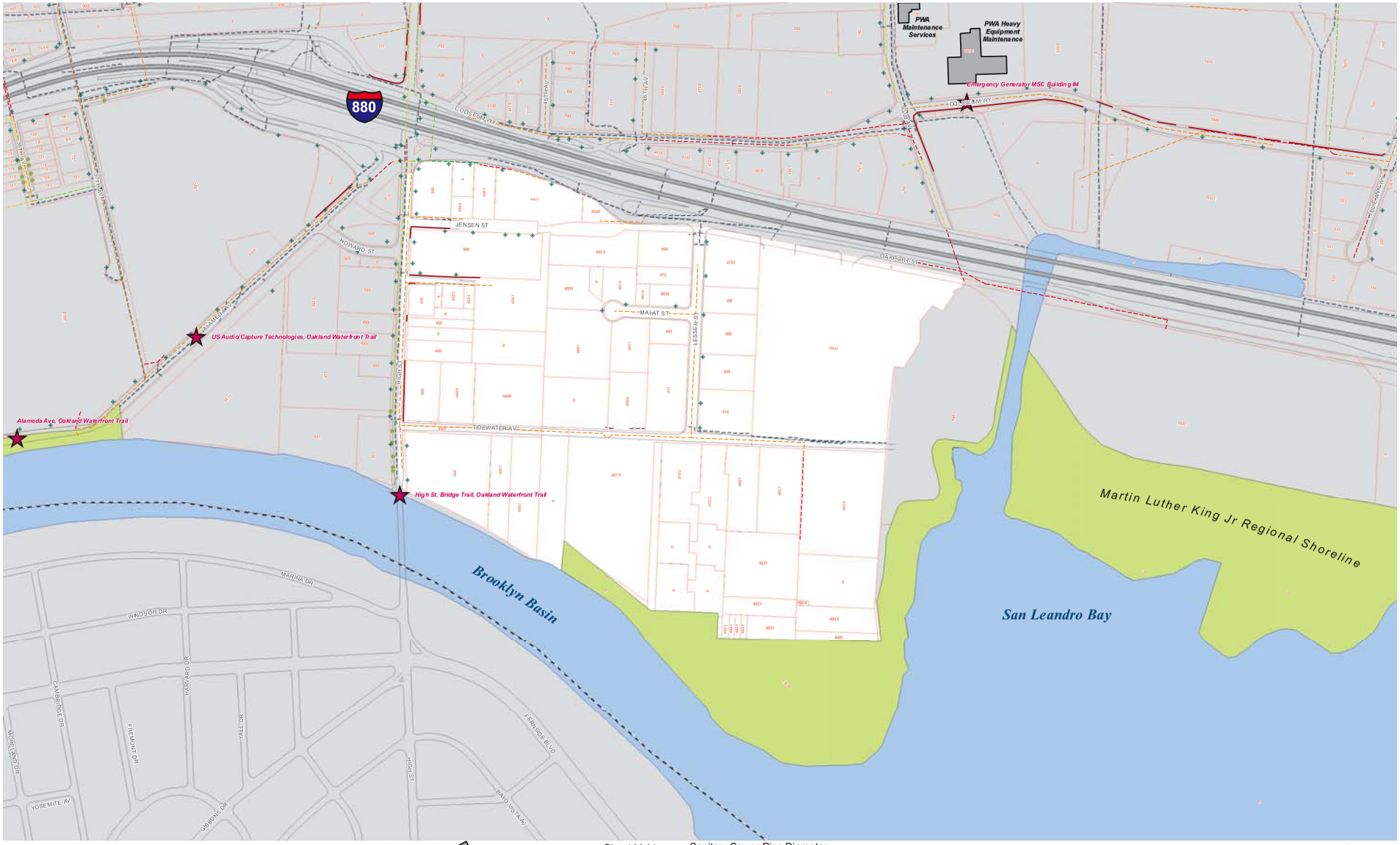
TRANSPORTATION, PAVEMENT, PROPERTY OWNERS

Legend

- City Facilities
- Selected Property Owners
- COLISEUM WY Streets on 5-Year Paving Plan
- Traffic Signals
- Stop Signs
- AC Transit Stop
- AC Transit Line
- BART Line
- BART Line
- Pavement Condition: Worst → Best

0 200 400 Feet

Appendix G



TIDEWATER INDUSTRIAL ZONE

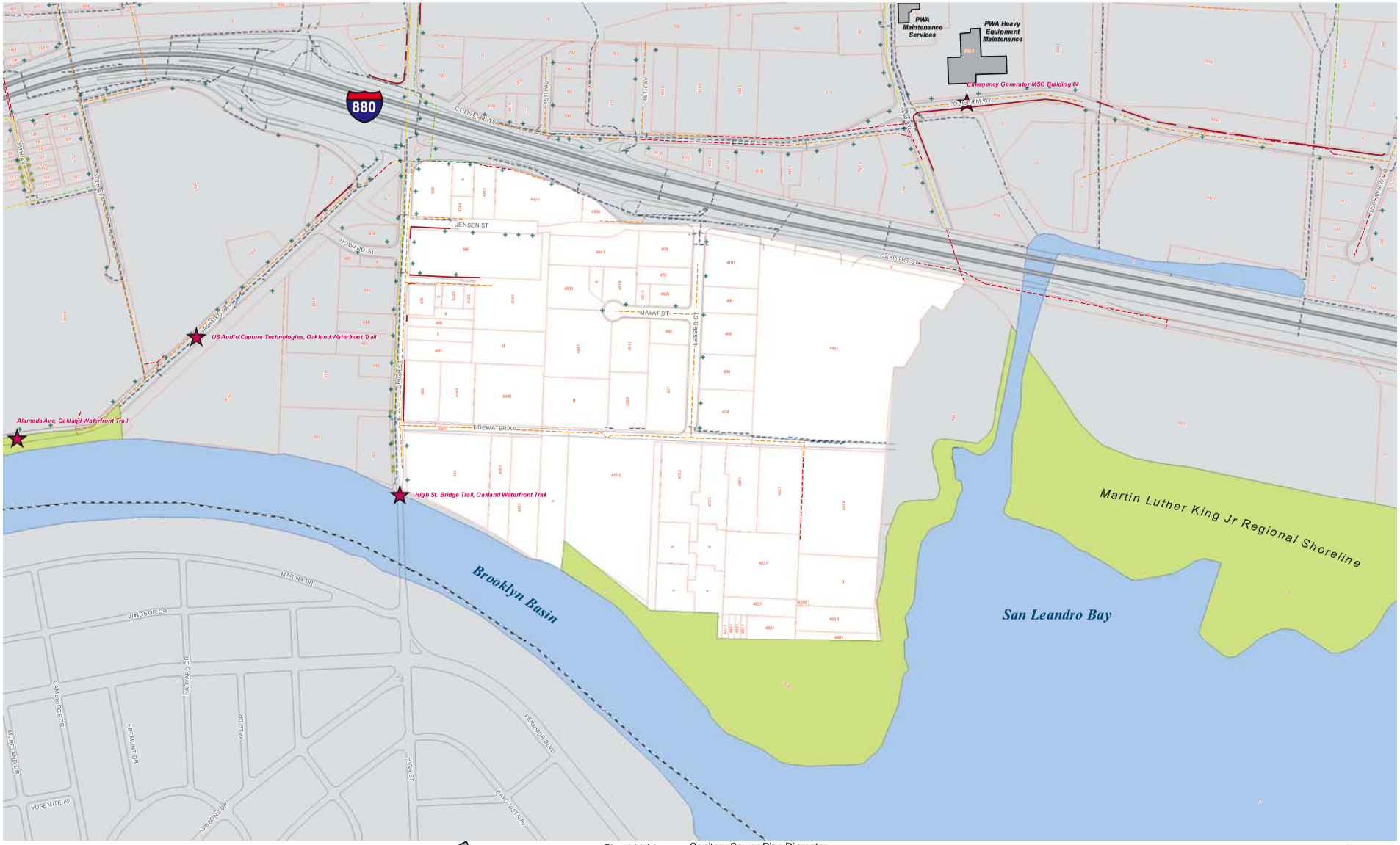
RIGHT-OF-WAY, SEWER & STORM DRAIN, CITY PROJECTS

Legend

- City Facilities
- City Projects
- Storm Drain
- Street Lights
- Street Trees
- Tree Wells
- No Sidewalk

Sanitary Sewer Pipe Diameter
- N/A
- 0.000001 - 12.000000
- 12.000001 - 21.000000
- 21.000001 - 39.000000
- 39.000001 - 80.000000

0 200 400 Feet



TIDEWATER INDUSTRIAL ZONE

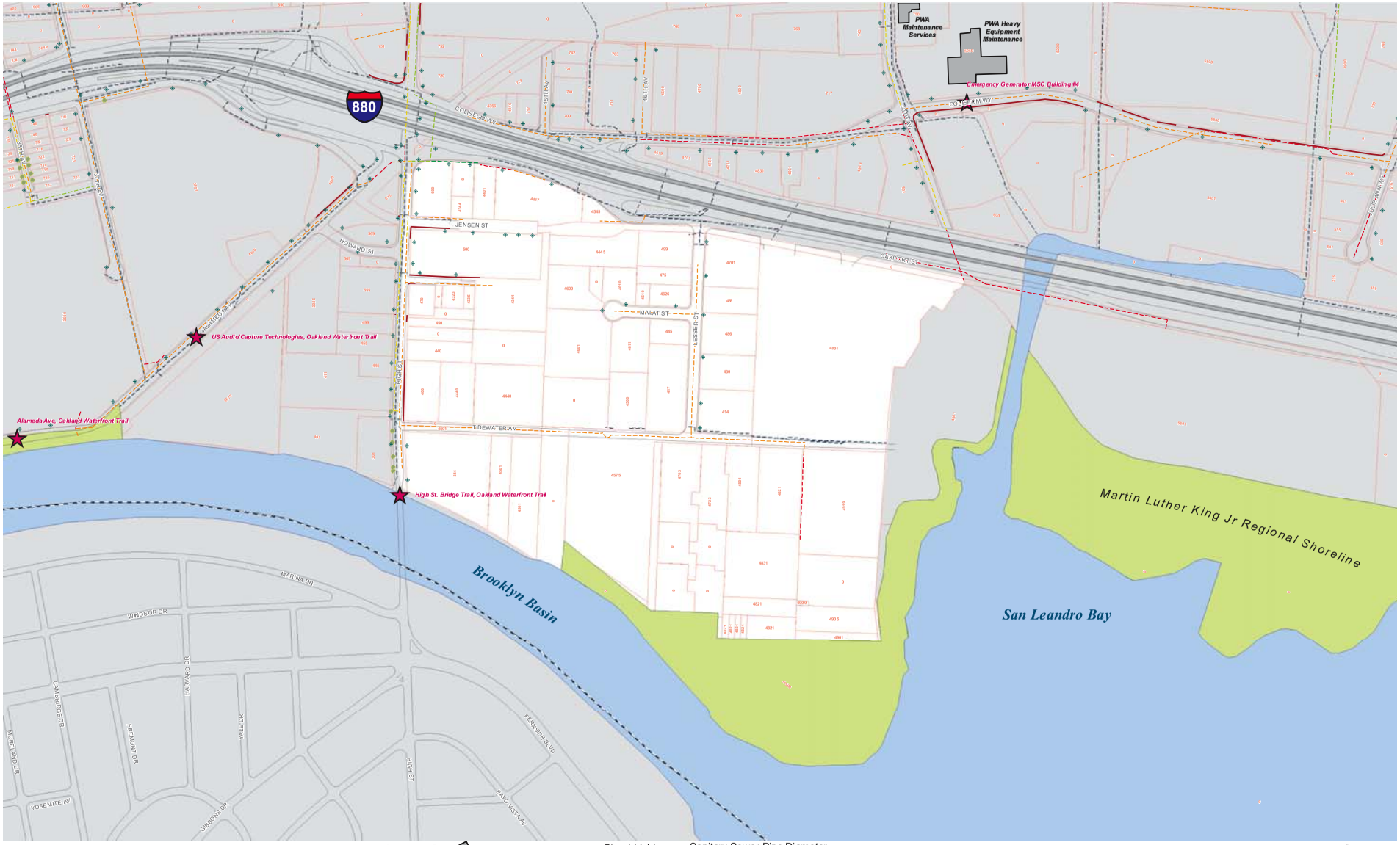
RIGHT-OF-WAY, SEWER & STORM DRAIN, CITY PROJECTS

Legend

- City Facilities
- City Projects
- Storm Drain
- Street Lights
- Street Trees
- Tree Wells
- No Sidewalk

Sanitary Sewer Pipe Diameter
- N/A
- 0.000001 - 12.000000
- 12.000001 - 21.000000
- 21.000001 - 39.000000
- 39.000001 - 80.000000

0 200 400 Feet



TIDEWATER INDUSTRIAL ZONE

RIGHT-OF-WAY, SEWER & STORM DRAIN, CITY PROJECTS

Legend

- City Facilities
- City Projects
- Storm Drain
- Street Lights
- Street Trees
- Tree Wells
- No Sidewalk

Sanitary Sewer Pipe Diameter
- N/A
- 0.000001 - 12.000000
- 12.000001 - 21.000000
- 21.000001 - 39.000000
- 39.000001 - 80.000000

0 200 400 Feet

Woodland - 81St Ave

	Diameter Inch	Length ft	Cost to Rehab/ft	Subtotal cost
*	0	1046	$105	$109,830
*	6	0	$105	$0
	8	3907	$105	$410,235
	10	553	$115	$63,595
	12	829	$125	$103,625
	14/15	0	$135	$0
	18	0	$155	$0
	21	0	$165	$0
	24	0	$175	$0
	33	1257	$235	$295,395
	60	0	$1,100	$0
	63	0	$1,200	$0
	Total Construction Cost			$982,680

Assumed 30% of pipes will be rehab	$294,804.00
Assumed 35% Design, Survey & Inspection	$103,181.40
Total Project Cost	$397,985.40

*Assumed rehab of 8" dia sewer

	385,169.18
	1,304,794.58
	982,680.00
GRAND TOTAL OF PROJECT COST	**2,672,643.75**

Appendix H

Melrose-Coliseum

	Diameter Inch	Length ft	Cost to Rehab/ft	Subtotal cost
*	0	4798	$105	$503,790
*	6	3492	$105	$366,660
	8	8065	$105	$846,825
	10	1506	$115	$173,190
	12	0	$125	$0
	14/15	1455	$135	$196,425
	18	18	$155	$2,790
	21	1610	$165	$265,650
	24	1083	$175	$189,525
	36	36	$235	$8,460
	60	564	$1,100	$620,400
	63	40	$1,200	$48,000
	Total Construction Cost			$3,221,715

Assumed 30% of pipes will be rehab	$966,514.50
Assumed 35% Design, Survey & Inspection	$338,280.08
Total Project Cost	$1,304,794.58

*Assumed rehab of 8" dia sewer

Tidewater

	Diameter Inch	Length ft	Cost to Rehab/ft	Subtotal cost
*	0	648	$105	$68,040
*	6	349	$105	$36,645
	8	1354	$105	$142,170
	10	1966	$115	$226,090
	12	1576	$125	$197,000
	18	118	$155	$18,290
	63	219	$1,200	$262,800
	Total Construction Cost			$951,035

Assumed 30% of pipes will be rehab	$285,310.50
Assumed 35% Design, Survey & Inspection	$99,858.68
Total Project Cost	$385,169.18

*Assumed rehab of 8" dia sewer

STORM DRAIN SYSTEM

Tidewater:

Rehabilitation of existing storm drainage system

	LF	% of total for rehab	Rehab cost/ft	
Conduits:	2681	30%	$ 285	$ 229,226
Structures	8.9366667	100%	$ 8,000	$ 71,493
Pump station				$ 3,500,000
Capacity improvement, SD master plan				
			Total	$ 3,800,719

Melrose-Coliseum:

Rehabilitation of existing storm drainage system

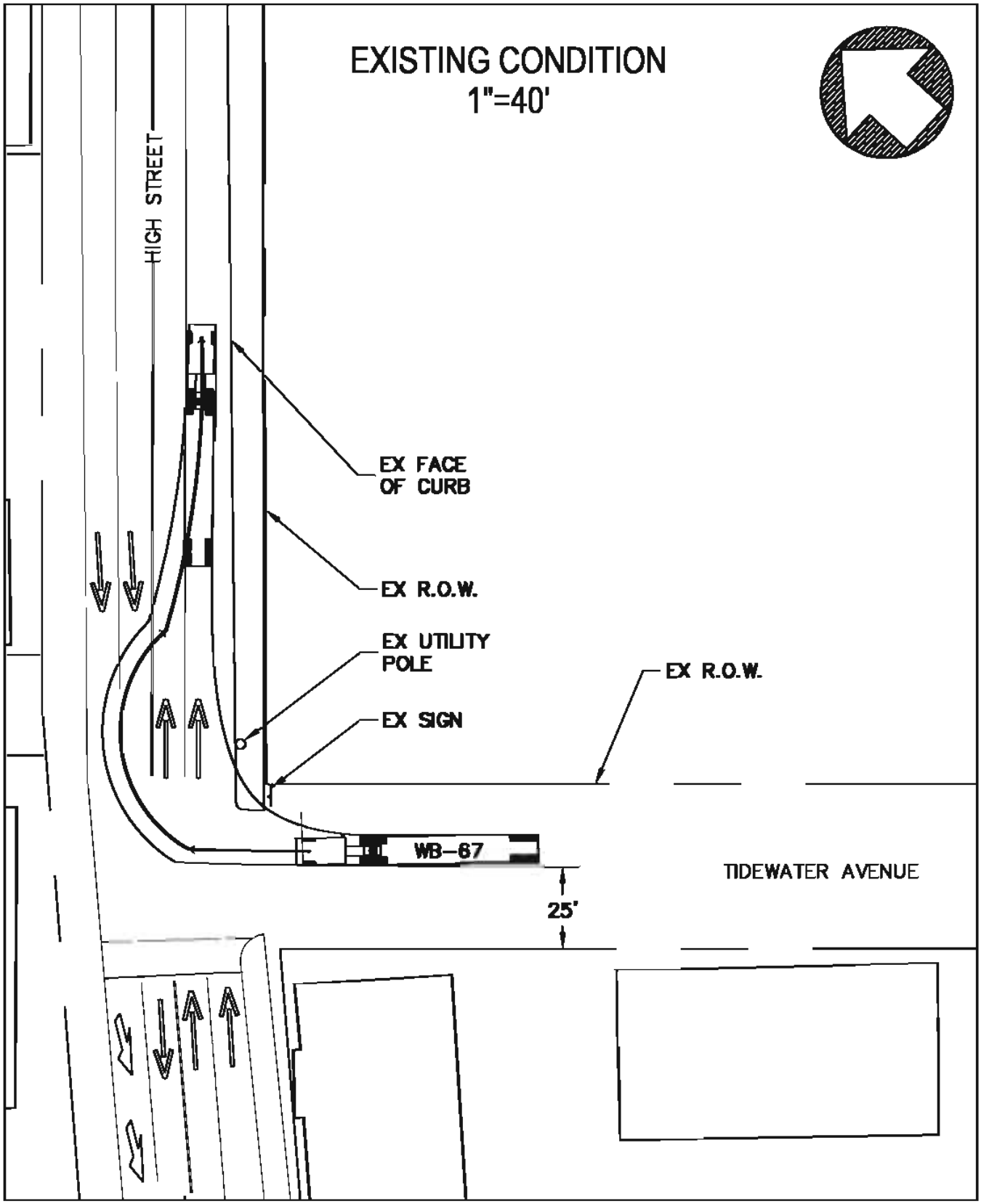
	LF	% of total for rehab	Rehab cost/ft	
Conduits:	27,237	30%	$ 285	$ 2,328,764
Structures	90.79	100%	$ 8,000	$ 726,320
Capacity improvement, SD master plan				$1,595,028
			Total	$ 4,650,112

Woodland-81st Avenue

Rehabilitation of existing storm drainage system

	LF	% of total for rehab	Rehab cost/ft	
Conduits:	34,377	30%	$ 285	$ 2,939,234
Structures	114.59	100%	$ 8,000	$ 916,720
Capacity improvement, SD master plan				$1,467,421
			Total	$ 5,323,375

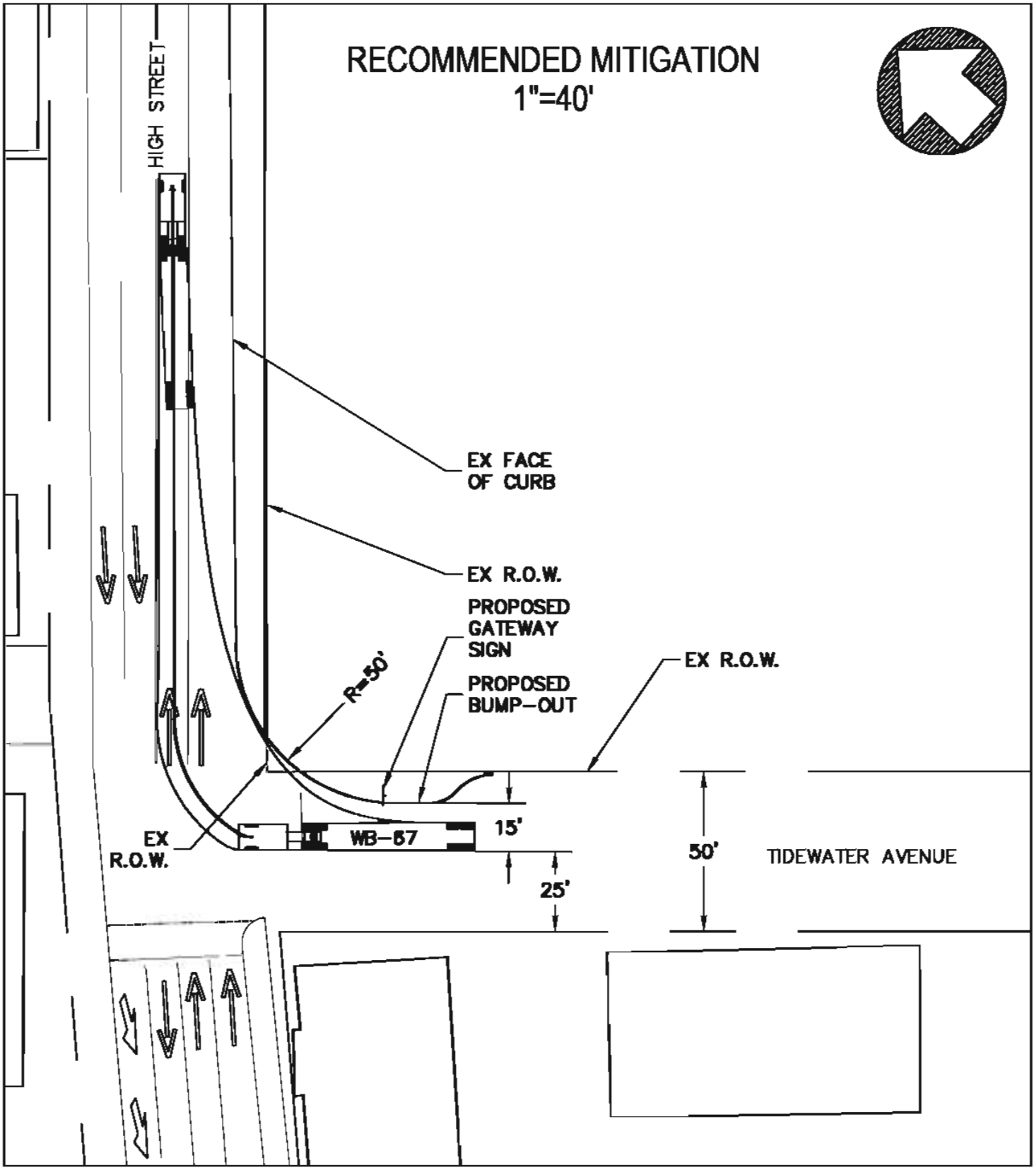
Appendix I



TIDEWATER INDUSTRIAL DISTRICT
HIGH STREET & TIDEWATER AVENUE
08/25/08

BkF
Engineers / Surveyors / Planners
2727 NORTH MAIN STREET
SUITE 300
WALNUT CREEK, CA 94596
925-940-2200
925-940-2201 (FAX)

Appendix J



TIDEWATER INDUSTRIAL DISTRICT

HIGH STREET & TIDEWATER AVENUE

08/25/08

BKF
2737 NORTH MAIN STREET
SUITE 300
WALNUT CREEK, CA 94596
925-940-2200
925-940-2201 (FAX)