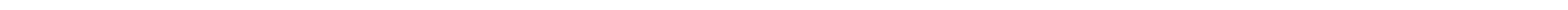




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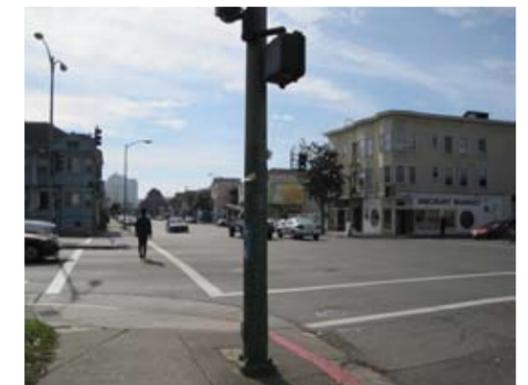




## REGIONAL CONTEXT

The MLK/Peralta Streetscape Master Plan covers the rights-of-way of two streets traversing different areas of West Oakland: Martin Luther King, Jr. Way, from 40th Street to West Grand Avenue, and Peralta Street from 35th Street to 3rd Street. The Master Plan is a roadmap for implementation of community endorsed streetscape improvements over a long range time horizon.

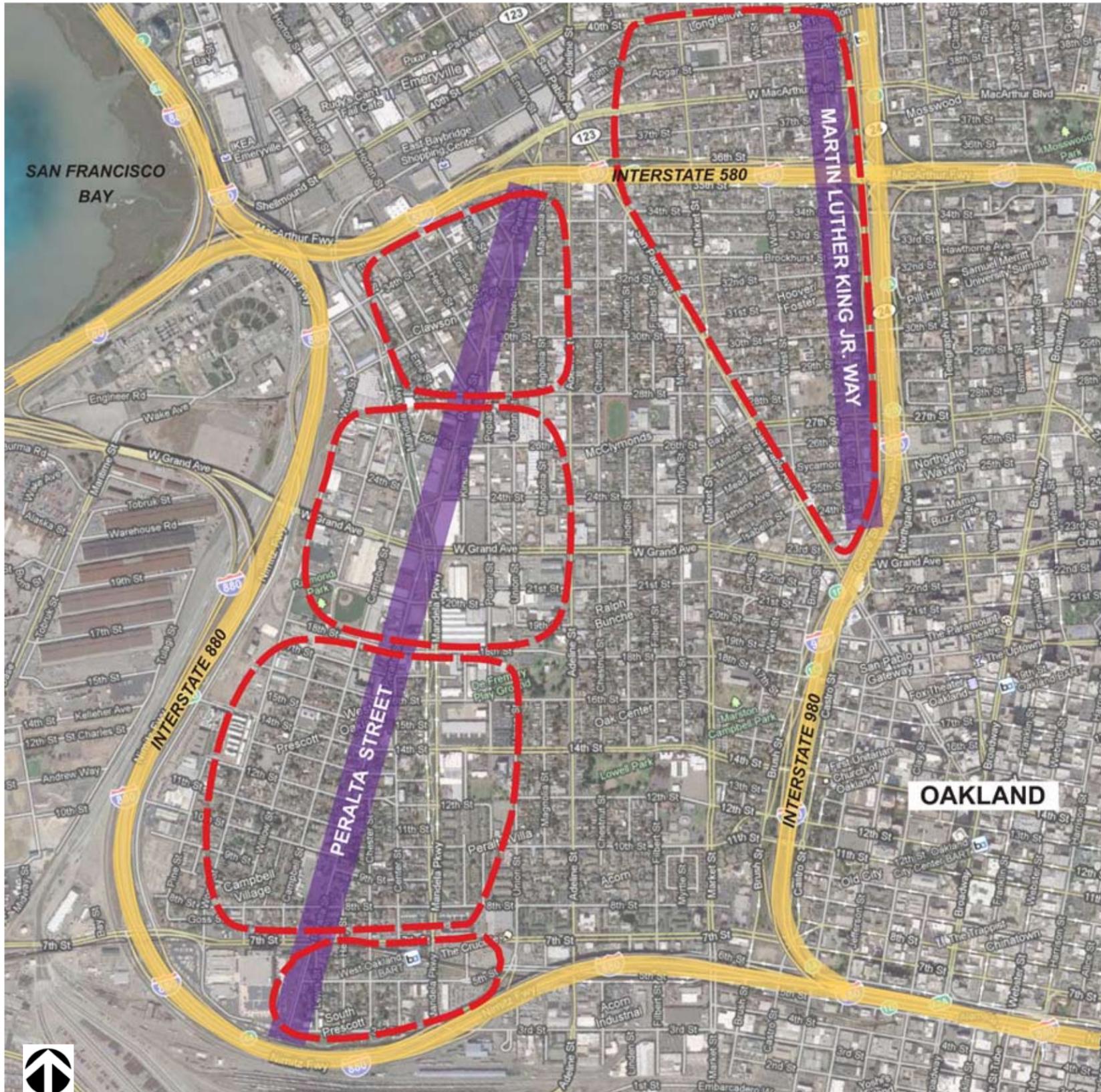
Streetscape improvements are intended to improve a street’s functionality, visual character and public safety. These improvements, in turn, can stimulate new development and redevelopment along the street corridor. The West Oakland Project Area Committee (WOPAC) determined that MLK and Peralta were two streets that could best benefit from such improvements, and selected them for preparation of streetscape plans and design documents for future improvements.



## NEIGHBORHOOD CONTEXT

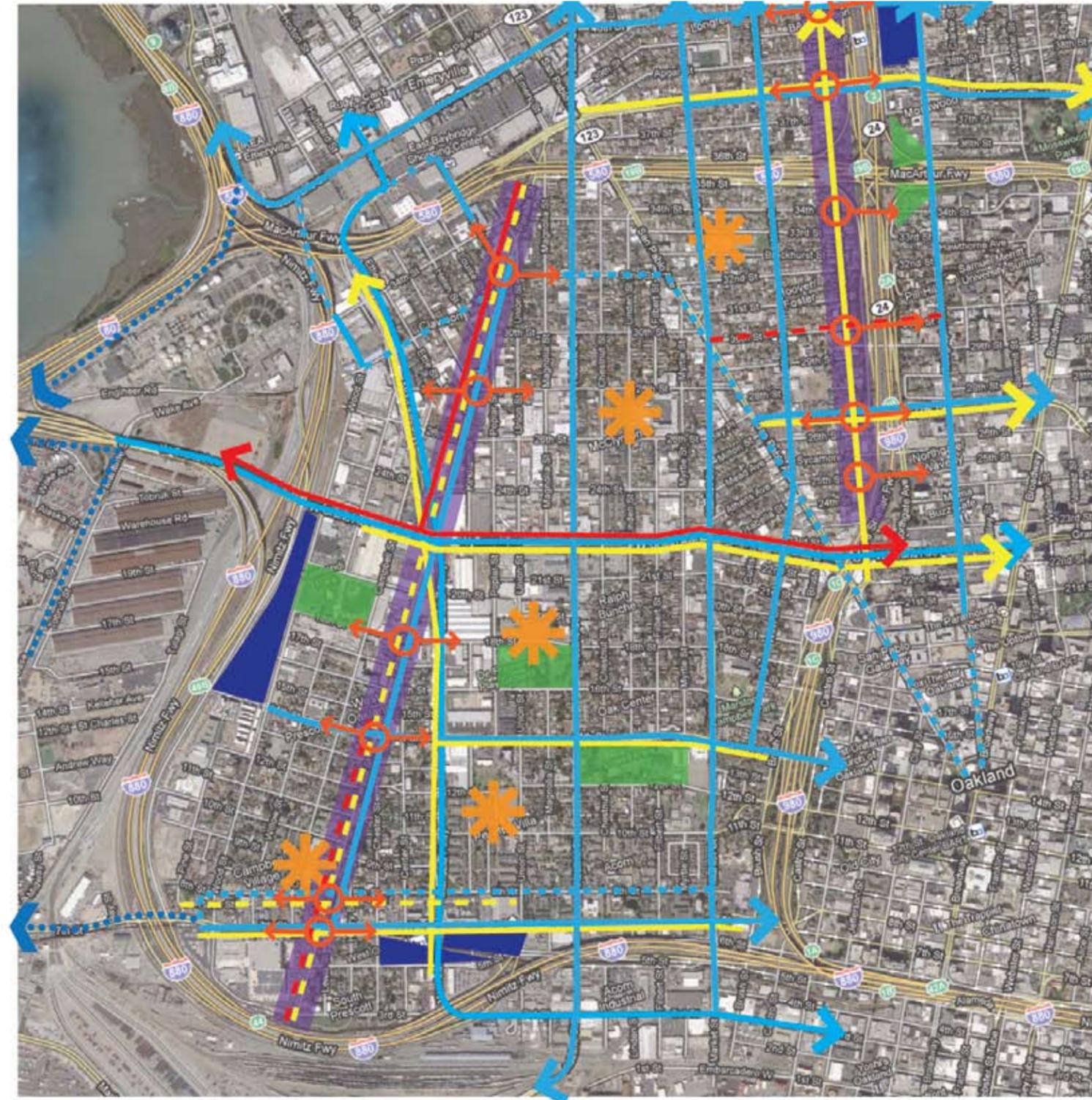
Martin Luther King, Jr. Way was once a central arterial through its surrounding neighborhood. The construction of the elevated I-580 and I-980 (Grove-Shafter) freeways divided this neighborhood, creating a barrier between its western core and the eastern and northern parts of the old neighborhood. While north-south travel is not interrupted, the freeway creates a formidable visual barrier. Martin Luther King, Jr. Way is dominated by the elevated freeway which parallels it less than a block to the east, and which physically severs most of the east-west streets through the old neighborhood. As a result, Martin Luther King, Jr. Way has become an edge to the Foster Hoover neighborhood (also known as the West MacArthur/Hoover Redevelopment Project Area.) Uses along Martin Luther King, Jr. Way are mixed, with commercial nodes, higher density residential and some areas of open space. The Foster Hoover neighborhood is primarily small lot residential.

Peralta Street runs for approximately 2 miles through the center of several neighborhoods or zones, each with a distinct character. The northern portion, from 35th Street to 28th Street, runs through a neighborhood of mixed uses, including single and multi-family residential, commercial and light industrial uses, as well as a neighborhood park with a community center, and smaller green spaces which are now being used for urban agriculture. The central portion, from 28th Street to 18th Street, has been primarily industrial, including steel and recycling plants, but is undergoing transition. The corridor along West Grand is slated for major redevelopment, but the nature of the future uses is not yet determined. The southern portion of Peralta Street runs through the primarily residential Prescott and South Prescott neighborhoods, terminating at open space at 3rd Street.



**LEGEND**

- BIKE LANES - (Existing & Proposed)
- CLASS 1
- CLASS 2
- CLASS 3
- MAJOR PEDESTRIAN ROUTE - "CITY"
- PEDESTRIAN ROUTE - "DISTRICT"
- IMPORTANT CROSSINGS
- SCHOOL
- LARGE PARK
- PLANNED DEVELOPMENT
- TRUCK ROUTE
- TRUCKS PROHIBITED (Many streets in Peralta-adjacent neighborhoods are also "Trucks Prohibited" but not indicated on this diagram.)
- PROJECT STREET



### CIRCULATION CONTEXT

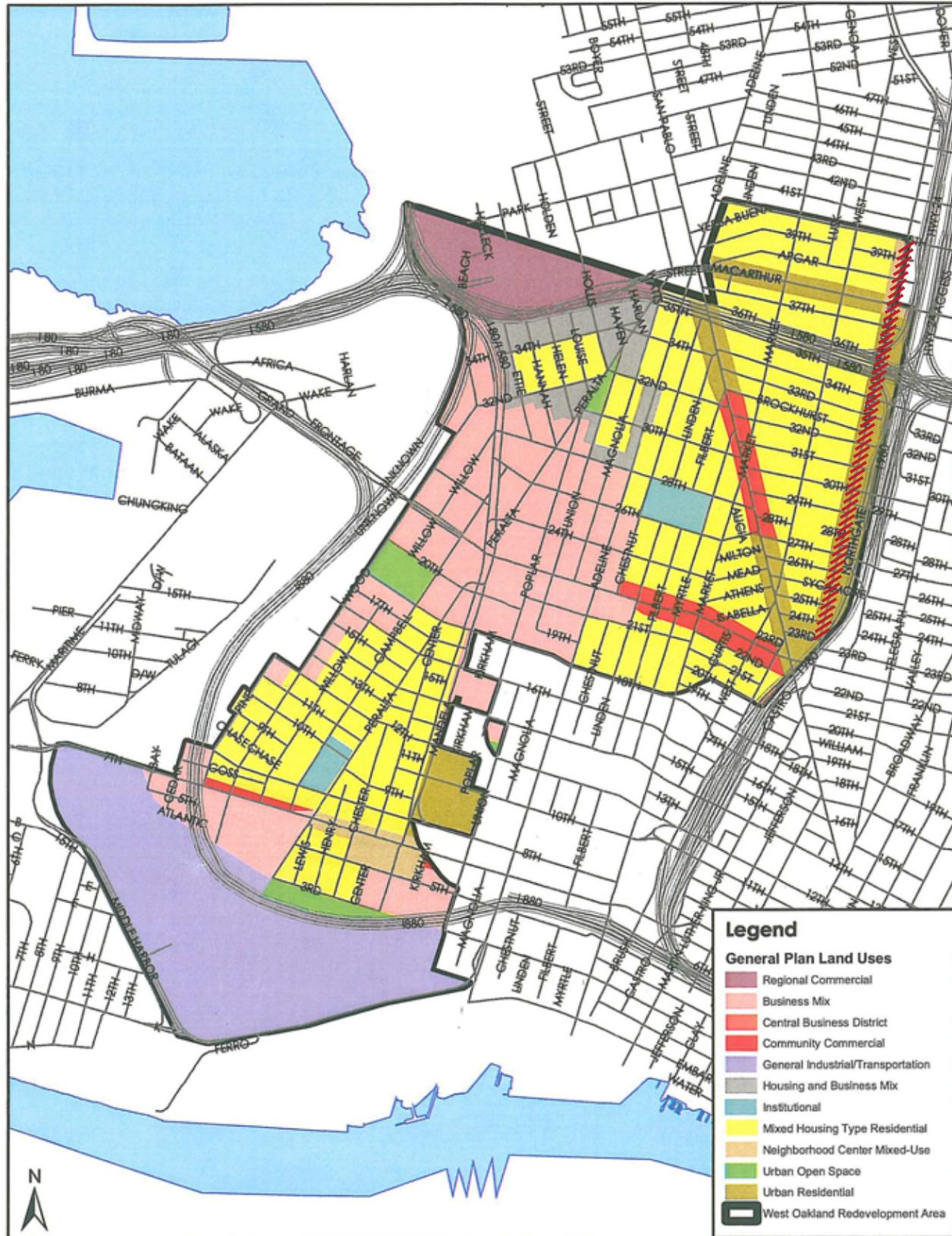
Both Martin Luther King, Jr. Way and Peralta Street are important corridors for their respective neighborhoods. Martin Luther King, Jr. Way is designated as a major ("City") Pedestrian Route in the City of Oakland Pedestrian Master Plan. It is also the route for one of AC Transit's more heavily used bus lines. Peralta Street is designated as an important ("District") Pedestrian Route, as well as a proposed Class 2 Bicycle Route.

The Circulation Diagram shows the two project streets in relation to major neighborhood destinations, such as schools, parks and planned new development. It also shows bicycle routes designated in the City of Oakland Bicycle Master Plan, and other major circulation designations.



MARTIN LUTHER KING JR. WAY

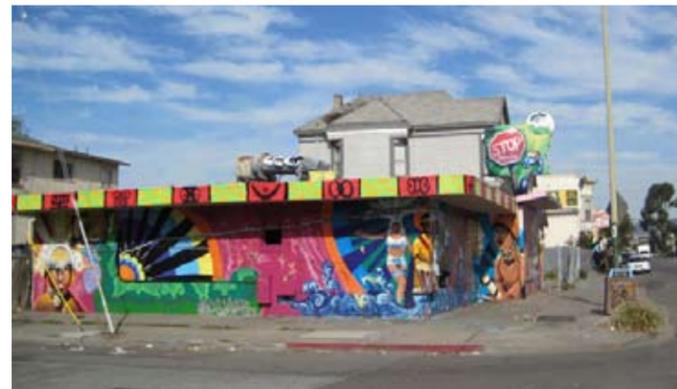


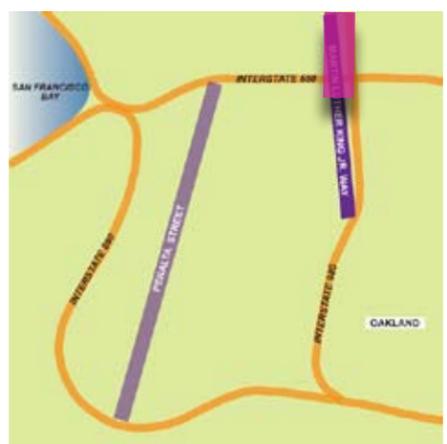


### Land Uses and Frontages

Land uses along Martin Luther King, Jr. Way are predominantly Urban Residential, with Neighborhood Commercial Mixed Use between West MacArthur Blvd. and 40th Street. These uses consist of a mix of housing types with interspersed commercial uses. Most blocks contain both residences and ground floor businesses. Residences range from single family homes with front yards to multi-story multi-family buildings. Most residences with front setbacks have fences at the back of sidewalk. Non-residential uses along Martin Luther King, Jr. Way include corner markets, churches, café's, the well-known Marcus Books and Ghost Town Farm, and auto body shops, among others. A number of buildings are vacant and boarded up, and the Community Rejuvenation Project has painted murals on a couple of vacant structures. Several parks front onto Martin Luther King, Jr. Way, including Grove Shafter Park, under the I580/I-980 Interchange, which is the site of a new dog park, and the 25th Street Mini Park, which is currently fenced due to security issues. There are several areas of non-park open space along the freeway edges.

The project area has evolved over a long period of time, and a mix of architectural styles and periods are seen along the street, from Victorian residences to brick commercial buildings, to modern condominiums.





- LEGEND**
- █ GOOD SIDEWALK
  - █ BAD / OR NO SIDEWALK / OR WITH OBSTACLES
  - BUS STOP
  - ⊕ STREET LIGHT
  - PLANTER / BENCH
  - ▲ BIKE RACK
  - ~ DRAINAGE ISSUE
  - DRIVEWAY
  - EXISTING STREET TREE

## Street and Sidewalk

Martin Luther King Jr. Way is dominated by the elevated freeways that cross it at either end of the project area and that parallel it to the east. Many of the cross streets become short cul-de-sacs on the east side of Martin Luther King, Jr. Way, only a few parcels deep. Where the street passes under the freeways, it is stark and barren.

Martin Luther King, Jr. Way has a fairly uniform layout for the length of the project area, consisting of two lanes of travel in each direction and un-striped parallel parking on both sides of the street, with a street width of 56' from curb face to curb face, within an 80' right of way. On street parking appears to be readily available. Typically, the sidewalks are 12' wide, although they narrow in some areas to accommodate planters or planting strips.

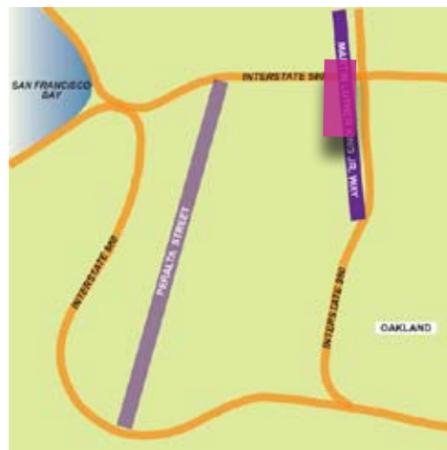
Martin Luther King, Jr. Way's street surface is generally good, but in fairly poor condition between 26th and 38th Streets. The Martin Luther King, Jr. Way roadway has a crowned cross-section -- generally 1-2% at the center two lanes, then 2-5% at the outer two lanes, then

4-8% at the parking lane. Curb and sidewalk conditions are also uneven, with some segments extremely worn, showing offsets, cracks, and other damage.

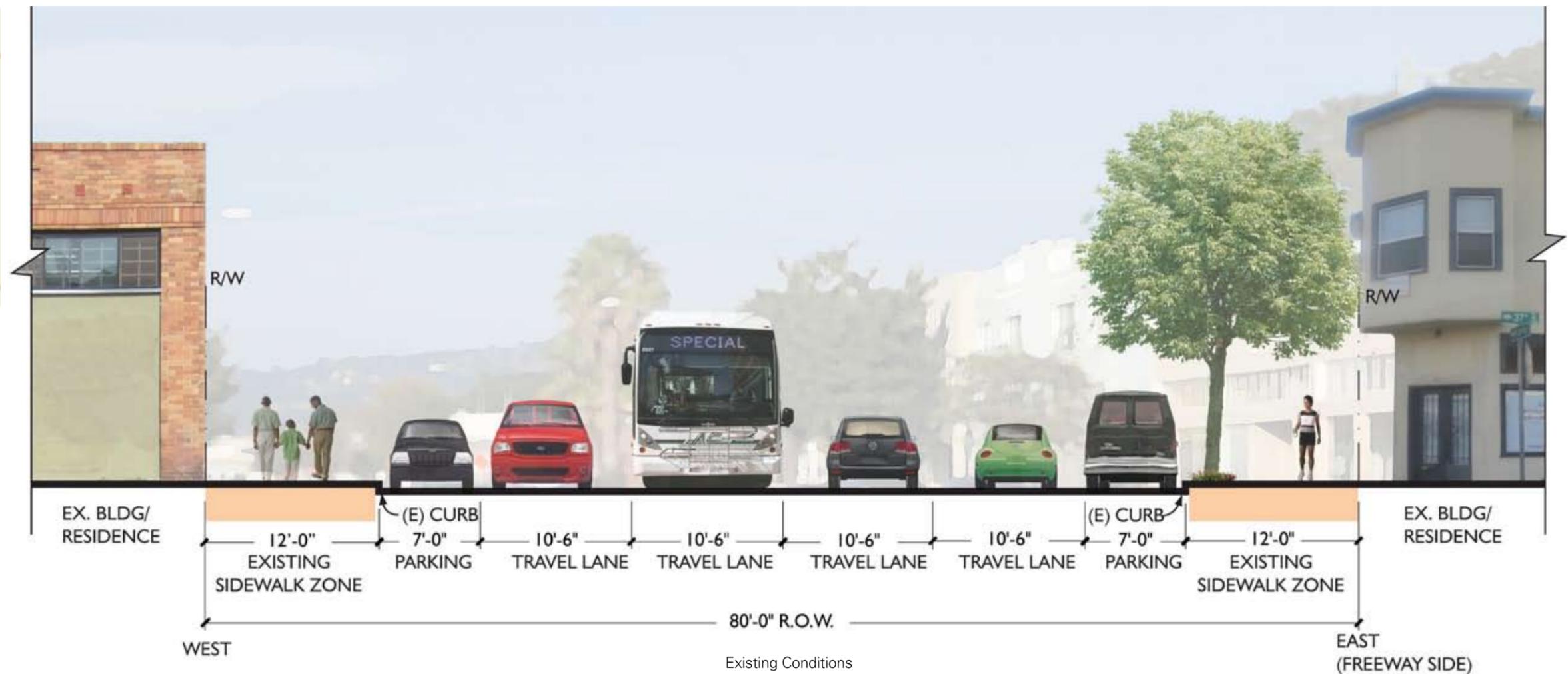
Martin Luther King, Jr. Way is designated as a "City" Pedestrian Route in the City of Oakland Pedestrian Master Plan, which calls for 12' wide sidewalks and bulb-outs at pedestrian crossings. It is not a designated bicycle route.

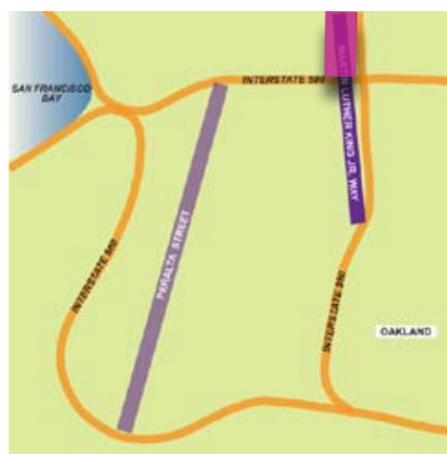
Martin Luther King, Jr. Way has a variety of street trees, the predominant species being magnolia. Spacing is sporadic and many tree wells are empty or paved over. There is little site furniture, other than an occasional bench and trash receptacle at some of the bus stops. Several businesses have had bike racks installed in front of their establishments.





- LEGEND**
- GOOD SIDEWALK
  - BAD / OR NO SIDEWALK / OR WITH OBSTACLES
  - BUS STOP
  - STREET LIGHT
  - PLANTER / BENCH
  - BIKE RACK
  - DRAINAGE ISSUE
  - DRIVEWAY
  - EXISTING STREET TREE





- LEGEND**
- GOOD SIDEWALK
  - BAD / OR NO SIDEWALK / OR WITH OBSTACLES
  - BUS STOP
  - ⊕ STREET LIGHT
  - PLANTER / BENCH
  - BIKE RACK
  - ~ DRAINAGE ISSUE
  - DRIVEWAY
  - EXISTING STREET TREE

### Utilities and Drainage

Electrical utilities have been undergrounded along the length of the project area, so no overhead wires or telephone poles clutter the sidewalk. Numerous longitudinal underground utilities exist under Martin Luther King, Jr. Way. The sanitary sewer system runs the entire length under each sidewalk.

On Martin Luther King, Jr. Way, drainage either travels in the gutter around the block to West Street catch basins or collects to catch basins at intersections. There are underground storm drainage pipes along the east side of the street from 23rd Street to 31st Street and from 36th Street to West MacArthur Blvd. There are underground storm drainage pipes perpendicular and crossing Martin Luther King, Jr. Way Jr. Way at 30th, 34th, and 36th. Local ponding has been observed, particularly in intersection areas without a catch basin or where the catch basin and storm drainage lateral may not have been maintained.

### Lighting

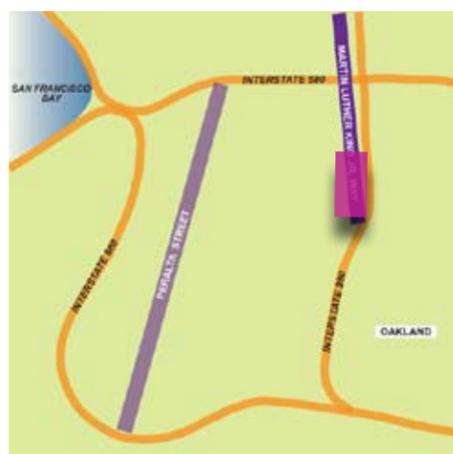
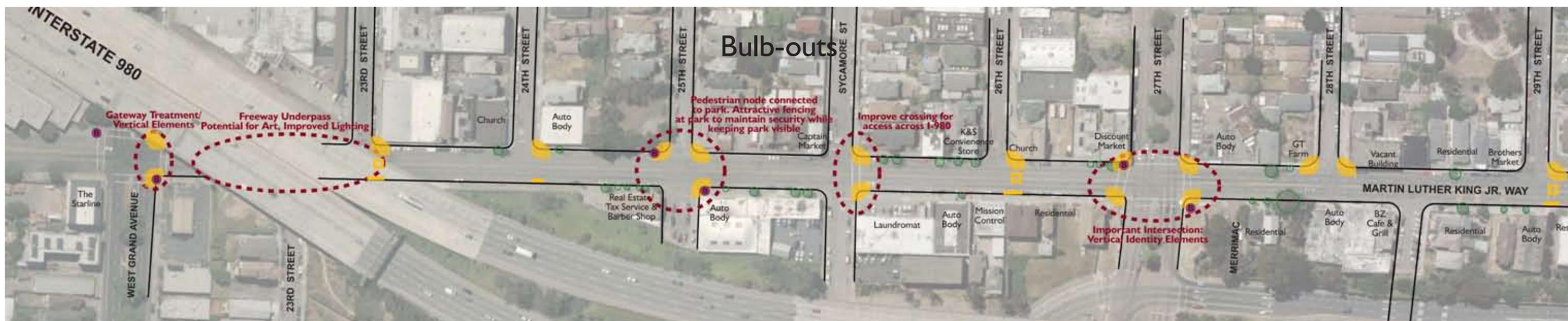
Street and sidewalk lighting is typically provided from pole mounted high pressure sodium (HPS) lamps in cobra-head luminaires located

on alternating sides of the street. The average lighting level on the street is just over 2 footcandles, which meets the City's illumination standards. The City of Oakland Pedestrian Master Plan proposed lighting levels of 0.9 footcandles for sidewalks, and 1.0 footcandles for collector street crosswalks and 2.0 footcandles for arterial street crosswalks, with recommended pole spacing of 50' on center. Sidewalk lighting along Martin Luther King, Jr. Way averages around 1.2 footcandles, although there are much darker areas between lights with much lower levels, as indicated by the 12:1 average/minimum uniformity ratio.

### Transit

AC Transit's Route 18 bus travels Martin Luther King, Jr. Way through the project area. It is a heavily used, trunk line route. Bus stops are typically nearside stops, and are located approximately 400 to 600 feet apart. Bus lines that cross Martin Luther King, Jr. Way include Routes C and 57 at 40th Street, Route CB at MacArthur Blvd., and Route 72 at San Pablo Avenue (just outside the project area). The MacArthur BART station is one block east of the northern end of the project area.





- LEGEND**
- BUS STOP LOCATION
  - EXISTING STREET TREE
  - BULB-OUTS
  - PEDESTRIAN REFUGE

## Gateways and Focal Points

The major portion of the project area is framed by elevated freeway overcrossings. These “portals” provide the opportunity for art elements that could transform them into more positive gateway features. Improved lighting under the freeways would make these areas feel safer for pedestrians. Chain link fencing could be replaced with attractive decorative fencing. At Grove Shafter Park, landscape elements and lighting could integrate the park with the streetscape, bringing the park feeling to the street. In addition to these “portals,” there are several major crossings, including West Grand Avenue, 27th Street, West MacArthur, and 40th Street, that provide opportunities for gateway features or identity elements (e.g. monoliths vertical elements such as monoliths or banner poles, landscape treatments, special paving).

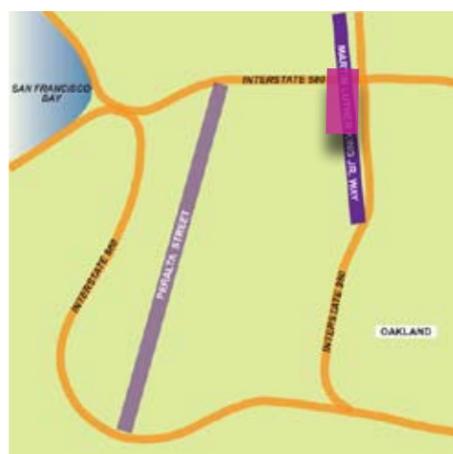
## Scaling the Street and Buffering Pedestrians

Currently, Martin Luther King, Jr. Way feels like a wide canyon. There are a number of opportunities to visually scale the street, shorten the crossing distance, and to separate pedestrians from vehicle traffic. Narrowing the curb to curb distance along the length of the street could be done by widening the sidewalks on one or both sides. As



Martin Luther King Jr. Way is a neighborhood edge, widening the sidewalk on the west side would build upon the existing connection back into the neighborhood. Whether or not sidewalks are widened, bulb-outs (curb extensions) may be considered at intersections and potential crossing points to shorten crossing distance for pedestrians and to visually narrow the street. Creating bulb-outs may reduce the number of available parking spaces, and this trade-off must be evaluated on a case-by-case basis.

Whenever a curb line is relocated or created (for sidewalk widening or bulb-outs, or curbed medians), a detailed analysis, including potholing, will generally be needed to determine the exact location of utilities in order to avoid conflicts. Similar analysis may be required for proposed trees, street light foundations, installed art foundations, utility vaults, and other items requiring excavation. In general, longitudinal utilities are more than 8 feet from the existing curbs. While short interruptions such as sidewalk bulbouts or parking islands may be acceptable, construction of foundations for street lighting or trees may not be feasible in some locations. Storm drainage systems are common constraints at intersection corners and need to be analyzed on a case-by-case basis. There are many ways to design work-arounds or modifications to inlets and piping.



- LEGEND**
- BUS STOP LOCATION
  - EXISTING STREET TREE
  - BULB-OUTS
  - PEDESTRIAN REFUGE

There is a range of opportunities for buffering pedestrians from vehicular traffic. Street trees, pedestrian-scaled lights and street furnishings create visual separation from traffic. If the sidewalk zone is widened, the planting and/or street furniture zone can be expanded to further separate pedestrians from the street. If sidewalks are not widened, diagonal parking may be implemented on at least one side of the street, widening the buffer zone between the pedestrians and the vehicle travel lanes. This treatment is only feasible where there are few driveways. Reverse-angle back in parking is safer for vehicles and cyclists than standard diagonal parking.

Consistent planting of street trees, infilling where they are now absent, would also buffer pedestrians. If new trees or pedestrian lighting is contemplated, care must be taken to determine proper clearance from the sanitary sewer system which runs the entire length under each sidewalk. The City's current lack of any budget for maintaining new landscape area is a significant constraint to any additional planting.

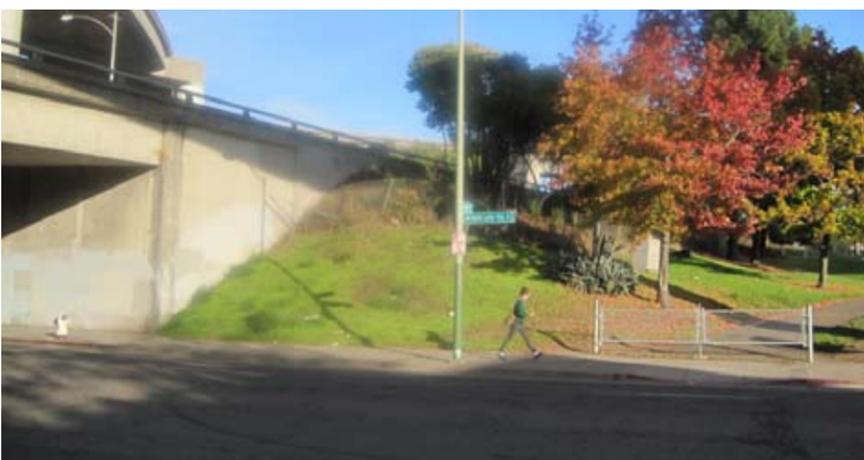
### SITE AMENITIES

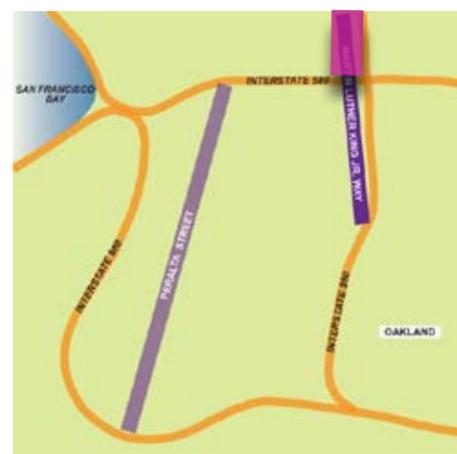
A range of elements may be included in the streetscape design to provide for pedestrian comfort, safety and convenience, and to convey neighborhood character and identity. Installation of pedestrian-

scaled lighting could not only improve the uneven and insufficient pedestrian lighting levels, but could enhance the ambiance and convey neighborhood character. Banners on the light poles could further contribute to neighborhood identity. Distinctive benches, trash receptacles and bike racks throughout the project area would improve pedestrian comfort as well as contributing to the neighborhood image. Elements or art or historic references may be included on vertical elements, or in the paving. Decorative crosswalks across Martin Luther King, Jr. Way and across the side streets could further define this as a special street.

### FUNCTIONAL IMPROVEMENTS

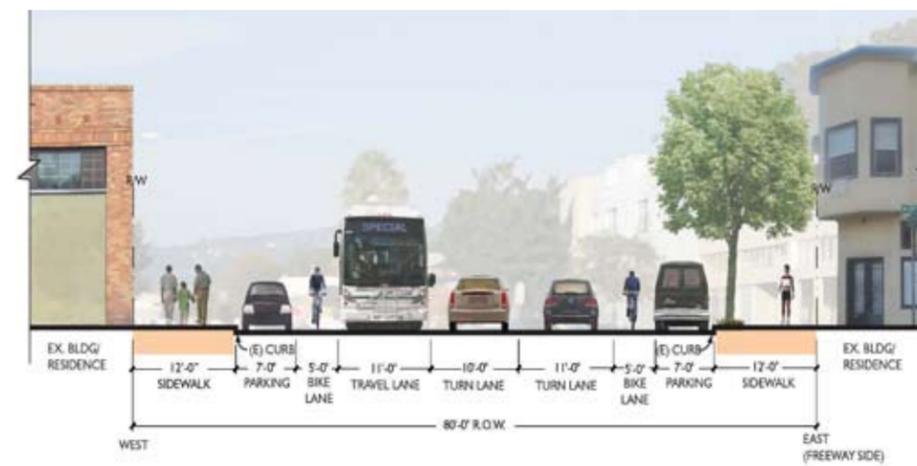
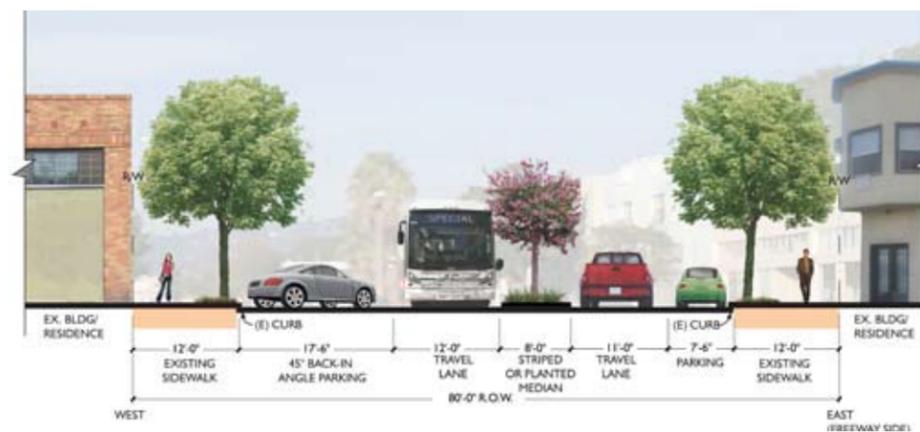
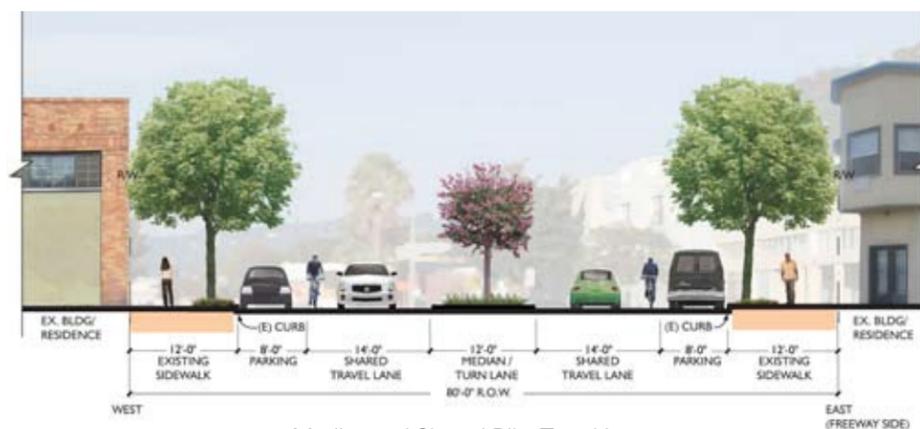
Importantly, this streetscape project presents the opportunity to improve the basic appearance and function of Martin Luther King, Jr. Way. As noted in the Existing Conditions section, portions of the street surface, sidewalks and curbs are in poor condition - potholed, broken, cracked or heaved. Repair of the existing sidewalks, curbs, ADA ramps and street surface throughout the project area would constitute a significant enhancement, and is a foundation upon which future improvements could be built. Drainage problems resulting from inadequate grading or storm drain maintenance issues could be addressed in the process. A uniform, well maintained pedestrian realm conveys neighborhood pride.





- LEGEND**
- BUS STOP LOCATION
  - EXISTING STREET TREE
  - BULB-OUTS
  - PEDESTRIAN REFUGE

### POSSIBILITIES WITHIN THE RIGHT OF WAY



## Traffic Opportunities and Constraints

One or more of the following measures are suggested for consideration along Martin Luther King Jr. Way:

- Implement a road diet to convert the existing 4-lane facility to 3-lane facility (one lane in each direction with left turn lanes approaching intersections, from just north of West Grand Avenue to just north of 40th Street
- Install curb extensions or other traffic calming devices
- Relocate or remove some bus stops and crosswalks

## ROAD DIET

A road diet is suggested for the portion of Martin Luther King Jr. Way from just north of West Grand Avenue to just north of 40th Street. A road diet would improve safety for motorists, pedestrians, bicyclists and transit service users. Reduced vehicle speeds and more uniform vehicle speeds, improved pedestrian safety, and reduced collision rates are all expected to result from reducing the number of lanes on Martin Luther King Jr. Way. Reduced vehicle speeds and the reduced number of lanes will make it easier for vehicles to enter Martin Luther King Jr. Way from unsignalized side streets.

Safety for pedestrians would also be improved by reducing the number of lanes in each direction on Martin Luther King Jr. Way from two lanes to one. Pedestrians face a particular problem in crossing multi-lane streets at unsignalized intersections, where a pedestrian may be unseen and struck by a vehicle in the second lane after a vehicle in the first lane has stopped to let the pedestrian pass.

The effects of a road diet on AC Transit operations would be essentially the same as for other motor vehicles. The reduction in travel speeds may increase AC Transit travel times. After implementation of the road diet, buses would pull out of the stream of traffic to pick up passengers at existing bus stops and re-entry into the traffic stream would be required. These effects would be offset at least to some degree by the more uniform speeds and improved traffic safety

that would result from the implementation of a road diet. In addition, a more inviting pedestrian environment should support transit ridership to the extent that transit patrons would feel more comfortable walking to and from transit stops. The net effect of the road diet on transit operations is not expected to be significant.

Road diets are typically considered for roadways that carry between 12,000 and 18,000 vehicles daily. Baxter Street in Athens, GA, and Euclid Avenue in Lexington, KY, serve approximately 20,000 vehicles daily. Traffic volumes on Martin Luther King Jr. Way, where the road diet is suggested, carries fewer than 6,200 vehicles daily – well below the levels of traffic successfully served by road diets in other areas. Traffic volumes on Martin Luther King Jr. Way are expected to grow by only approximately 10 percent by 2035 according to the forecasts produced from the Alameda Countywide Travel Model. Significant growth is anticipated along the streets that cross Martin Luther King Jr. Way; however, there is ample capacity at those intersections to accommodate a road diet on Martin Luther King Jr. Way.

The road diet would achieve the objective of providing a more balanced transportation system and make Martin Luther King Jr. Way a more “complete street.” Improving comfort and safety for walking and bicycling and should encourage more people to walk, bike, and use transit and thereby make a positive contribution to the reduction of greenhouse gases.

## Pedestrian Service

Implementation of a road diet offers opportunities to improve pedestrian service and safety along Martin Luther King Jr. Way. The road diet will shorten the crossing distances for pedestrians crossing Martin Luther King Jr. Way and many of the crossing streets.

Curb extensions may be added where parking is currently provided to further reduce the crossing distance for pedestrians. Installation of curb extensions would have little impact on the parking supply,

would significantly improve the ability of motorists to see pedestrians getting ready to enter a crosswalk, and would improve the ability of pedestrians to see approaching motorists before they begin to cross the street. Curb extensions are most needed where marked crosswalks are provided. Installation of a curb extension may eliminate an existing parking space.

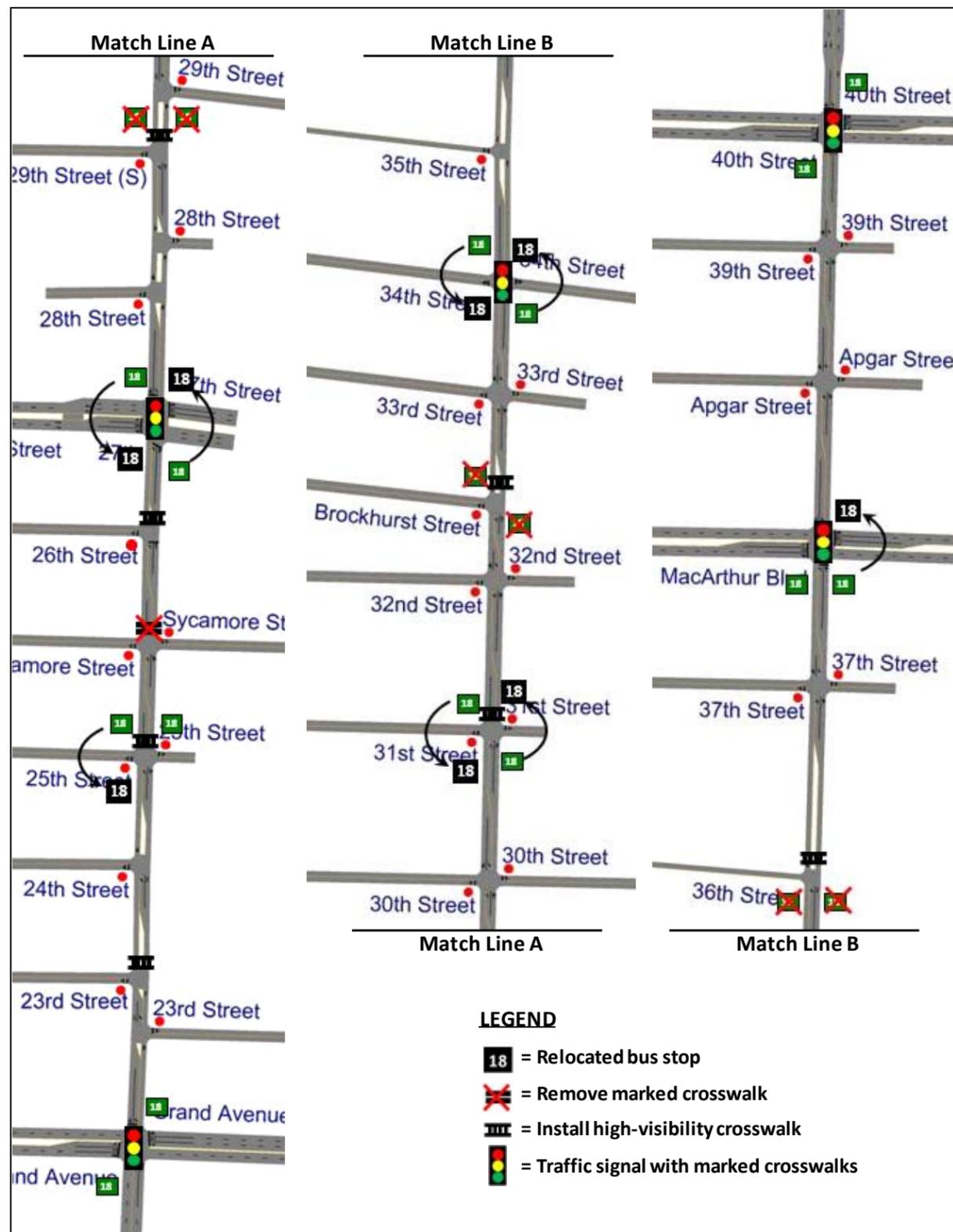
Implementation of a road diet would also provide an opportunity to install median islands in some locations, particularly near tee intersections, where turn lanes are not required to serve the missing leg of the intersection. Median refuge islands can provide refuge for pedestrians so they may cross one direction of motor vehicle traffic at a time.

Other features to improve pedestrian service might include:

- Speed feedback signs
- High-visibility fluorescent yellow green signs
- High-visibility pavement markings at uncontrolled crosswalks
- Improved street lighting
- Pedestrian countdown signals
- Signal timing modifications to ensure pedestrian accommodation
- Separated curb ramps at intersection corners
- Buffer between roadway and sidewalks
- Marked crosswalks and advance stop lines at controlled crosswalks
- ADA upgrades (audible pedestrian signals, accessible pushbuttons, truncated domes)
- Advance yield lines
- Flashing beacons
- In-roadway warning lights

## Bicycle Service

The City of Oakland Bicycle Master Plan (2007) does not propose a bikeway along Martin Luther King Jr. Way. Class 2 bike lanes are provided on West Street from West Grand Avenue to MacArthur Boulevard and are proposed to be extended to the north through the



Potential Traffic Design Features Diagram

project area. Telegraph Avenue is also shown on the Bicycle Master Plan as a future Class 2 facility. So Class 2 bike lanes are proposed on the adjacent streets west and east of Martin Luther King Jr. Way.

## Bus Service

Martin Luther King Jr. Way is viewed as a significant transit route by AC Transit and serves Line 18 with 15-minute headway service on weekdays and 20-minute service on weekends. Transit stops are closely spaced along the corridor (400 to 600 feet apart), however, pedestrian access to transit stops can be a challenge.

A well-designed road diet has the potential to improve pedestrian access to transit along the corridor and potentially improve transit service if certain transit-friendly design features are incorporated into the plan. To optimize transit performance whether or not a road diet is incorporated, AC Transit generally prefers to provide bus stops:

- Along local bus routes at a frequency of approximately 1,000 feet of separation
- At signalized intersections
- At the far side of intersections
- Where there are marked crosswalks
- Where there is at least 20 feet of roadway width in the direction of bus travel (this would require limiting the extension of curbs at transit stops if a road diet is implemented.)

These suggested changes to improve transit performance would involve relocation or removal of a number of bus stops along the corridor, as shown in the graphic on this page.

## Potential Traffic Design Features

Location specific suggestions for improvements to make Martin Luther King Jr. Way a more complete street serving primarily motorists, pedestrians, and transit are described below. Some of the specific treatments are shown in the Potential Traffic Design Features Diagram on this page. Some treatments that are not specifically listed would

also be advisable if funding permits: specifically, curb extensions to shorten pedestrian crossing distances at all intersections.

Crosswalks across streets that have no traffic controls (traffic signals or stop signs) should be high visibility with longitudinal markings (ladder, continental or other high-visibility style, which may include decorative paving). Also, signing for crosswalks should be modified to be consistent with current standards specified in the California Manual on Uniform Traffic Control Devices.

## West Grand Avenue

### OPPORTUNITIES

- Install curb extensions:
  - North, east and west legs

### CONSTRAINTS

- Curb extension is limited by need for 20-foot lane at transit stop north of the intersection
- Convert northbound right lane to right-turn only
- Median noses on West Grand Avenue may need to be modified to accommodate crosswalks, which may need to be relocated to shorten pedestrian crossing distances

Implementation of a road diet would reduce the pedestrian crossing distance across all legs of the intersection. The most obvious reduction would be at the north leg of the intersection where curb extensions could shorten the pedestrian crossing distance. The amount of reduction is limited by the location of an AC Transit stop just north of West Grand Avenue, which requires 20 feet for the northbound lane and bus stop. The pedestrian crossing distances across West Grand Avenue may also be shortened with curb extensions that would extend as far as the line of parking along the street. It may be possible to narrow the south leg, although the transit stop at that location would only allow shortening the distance by approximately 4 feet.

One of the through lanes approaching the intersection in the northbound direction would need to be modified to reduce the number of lanes crossing the intersection. Traffic volumes for the approach suggest that the northbound right lane should be converted to right-turn only movements.

## 23rd Street

### OPPORTUNITIES

- Install pedestrian median island (north leg)
- Install high-visibility crosswalk with pedestrian crossing signs (north leg)
- Install curb extensions:
  - North, east and west legs

## 25th Street

### OPPORTUNITIES

- Relocate southbound near-side bus stop to far side
- Install high-visibility crosswalk with pedestrian crossing signs (north leg)
- Install curb extensions:
  - North, east and west legs

The north side is suggested for the high-visibility crosswalk because the volume of traffic using the southbound left turn lane is expected to be significantly lower than the northbound left turn lane.

### Sycamore Street

The marked crosswalk on the north leg of this intersection may be removed as implementation of a road diet creates opportunities for marked crosswalks at intersections immediately north and south of Sycamore Street. A marked crosswalk is suggested at 25th Street to provide access to transit stops and a marked crosswalk is suggested at 26th Street, where a pedestrian median island may be installed. Marked crosswalks spaced as closely as two blocks apart should provide adequate pedestrian service.

## 26th Street

### OPPORTUNITIES

- Install pedestrian median island (north leg)
- Install high-visibility crosswalk with pedestrian crossing signs (north leg)
- Install curb extensions:
  - North, east and west legs

## 27th Street

### OPPORTUNITIES

- Relocate northbound and southbound near-side bus stops to far side
- Install curb extensions at all legs of the intersection

### CONSTRAINTS

- Median noses on 27th Street may need to be modified to accommodate crosswalks, which may need to be relocated to shorten pedestrian crossing distances
- Curb extension is limited by need for 20-foot lane at transit stops north and south of the intersection

## 29th Street

### OPPORTUNITIES

- Remove bus stops
- Install pedestrian median island (north leg)
- Install high-visibility crosswalk with pedestrian crossing signs (north leg)
- Install curb extensions:
  - North, east and west legs

Elimination of the bus stops at this location would still leave the frequency of bus stops along Martin Luther King Jr. Way within AC Transit standards and would improve AC Transit running times.

### 31st Street

#### OPPORTUNITIES

- Relocate northbound and southbound near-side bus stops to far side
- Install pedestrian median island (north leg)
- Install high-visibility crosswalk with pedestrian crossing signs (north leg)
- Install curb extensions:
  - North, east and west legs

#### CONSTRAINTS

- Curb extension is limited by need for 20-foot lane at transit stops north and south of the intersection

### Brockhurst Street

#### OPPORTUNITIES

- Remove bus stops
- Install pedestrian median island (north leg)
- Install high-visibility crosswalk with pedestrian crossing signs (north leg)
- Install curb extensions:
  - North, east and west legs

Elimination of the bus stops at this location would still leave the frequency of bus stops along Martin Luther King Jr. Way within AC Transit standards and would improve AC Transit running times.

### 34th Street

#### OPPORTUNITIES

- Relocate northbound and southbound near-side bus stops to far side
- Install pedestrian median island (north leg)
- Install high-visibility crosswalk with pedestrian crossing signs (north leg)
- Install curb extensions:
  - North, east and west legs

#### CONSTRAINTS

- Curb extension is limited by need for 20-foot lane at transit stops north and south of the intersection

There may be an opportunity to remove the traffic signal at this intersection. An analysis of the peak hour traffic signal warrant showed that this intersection falls far below satisfying the peak hour signal warrant in 2035. If 2035 traffic volumes on 34th Street were to double, the traffic signal would still not satisfy the peak hour warrant. If 2035 traffic volumes on both 34th Street and Martin Luther King Jr. Way were to double, the peak hour warrant would be satisfied.

This intersection is adjacent to bus stops. If the traffic signal were removed, access to transit could be provided by installing a high-visibility crosswalk across the north leg of the intersection.

### 36th Street

#### OPPORTUNITIES

- Remove bus stops
- Install pedestrian median island (north leg)
- Install high-visibility crosswalk with pedestrian crossing signs (north leg)
- Install curb extensions:
  - North, east and west legs

Elimination of the bus stops at this location would still leave the frequency of bus stops along Martin Luther King Jr. Way within AC Transit standards and would improve AC Transit running times.

### MacArthur Boulevard

#### OPPORTUNITIES

- Relocate northbound near-side bus stop to far side
- Reduce the number of lanes on MacArthur Boulevard from three (3)

lanes in each direction to two (2) lanes with a center left-turn lane

- Install curb extensions at all legs of the intersection

#### CONSTRAINTS

- Reducing the number of lanes on MacArthur Boulevard will require developing a transition for the approaches to the intersection. Lane transitions would at least require signing and pavement delineation modifications.
- Median noses on MacArthur Boulevard may need to be modified to accommodate crosswalks, which may need to be relocated to shorten pedestrian crossing distances
- Curb extension is limited by need for 20-foot lane at transit stops north and south of the intersection

### 40th Street

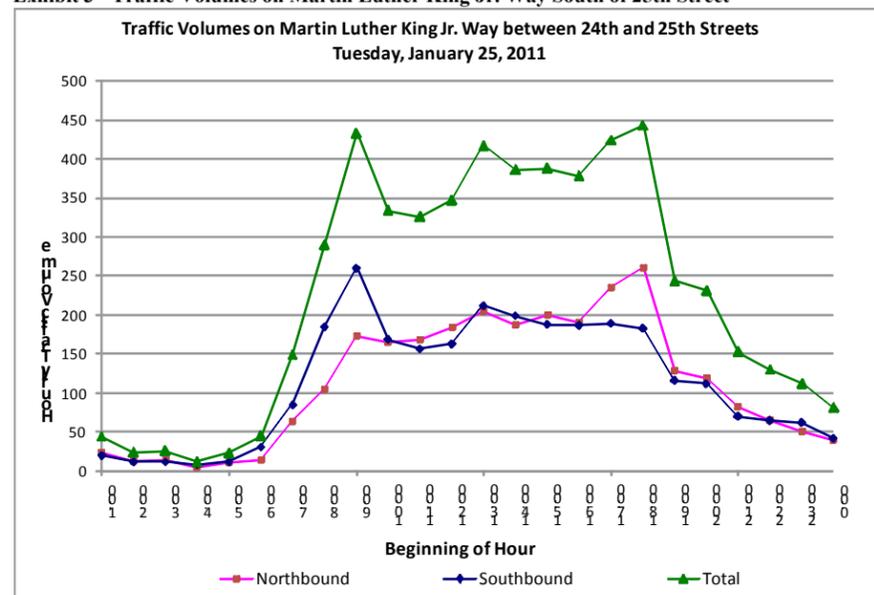
#### OPPORTUNITIES

- Install curb extensions at all legs of the intersection

#### CONSTRAINTS

- Reducing the number of lanes on Martin Luther King Jr. Way will require developing a transition for the southbound approach to the intersection. The lane transition would at least require signing and pavement delineation modifications.
- Median noses on 40th Street may need to be modified to accommodate crosswalks, which may need to be relocated to shorten pedestrian crossing distances
- Curb extension is limited by need for 20-foot lane at transit stops north and south of the intersection

Exhibit 3 - Traffic Volumes on Martin Luther King Jr. Way South of 25th Street



## Data Collection and Field Observations

The data collection tasks for the Martin Luther King Jr. Way corridor included collecting 24-hour machine counts, peak period intersection turn movement counts, and relevant roadway information.

### DAILY TRAFFIC VOLUMES

Bi-directional 24 hour weekday traffic data were collected on Tuesday, January 25, 2011. There were a total of 3 count locations selected along Martin Luther King Jr. Way at the following locations:

- Martin Luther King Jr. Way South of 25th Street
- Martin Luther King Jr. Way South of 29th Street
- Martin Luther King Jr. Way South of 35th Street

The results of 24 hour tube counts at the 3 locations along Martin Luther King Jr. Way are shown in Exhibit 3 through Exhibit 5. As these graphs show, traffic is fairly evenly split between northbound and southbound travel. Only the area south of 25th Street shows a moderate directional difference in the AM and PM peak of around 75 vehicles. (Exhibit 3)

Exhibit 4 - Traffic Volumes on Martin Luther King Jr. Way South of 29th Street

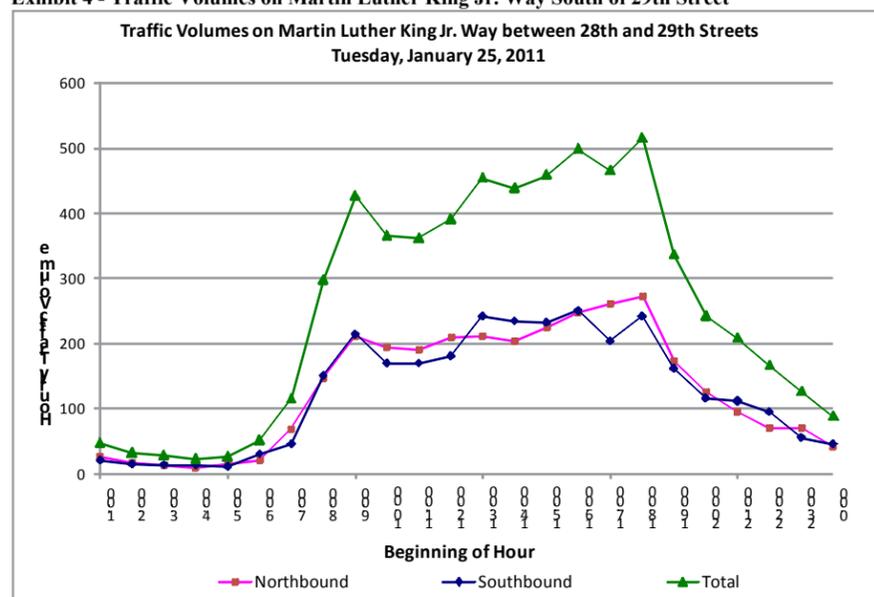
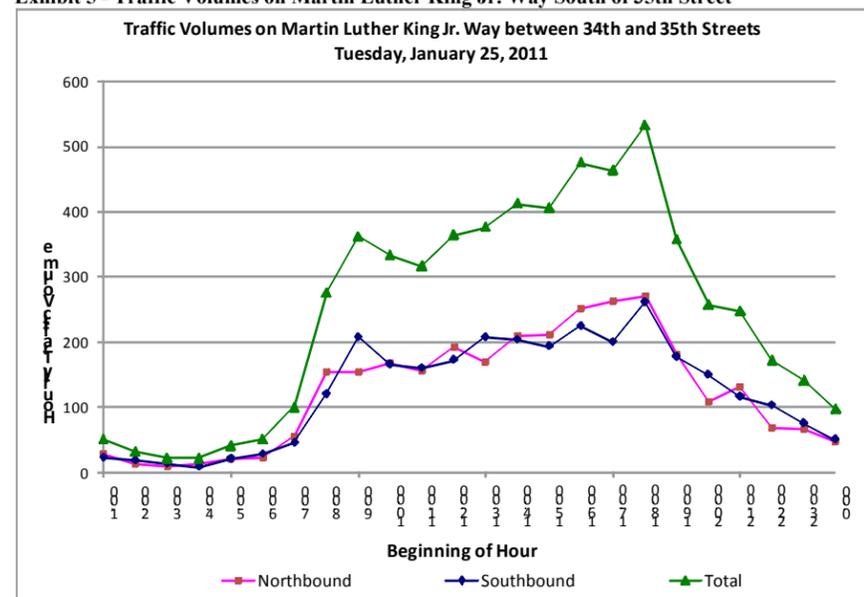


Exhibit 5 - Traffic Volumes on Martin Luther King Jr. Way South of 35th Street



## EXISTING PEAK HOUR INTERSECTION TURNING VOLUMES

Intersection counts were performed on Tuesday, February 8, 2011 at 4 locations along Martin Luther King Jr. Way. Turn movement volumes for the AM peak period were collected between 7-9AM, while the PM counts were collected from 4-6PM. The locations of the 4 intersection turn movement counts were:

- Martin Luther King Jr. Way and West Grand Avenue
- Martin Luther King Jr. Way and 27th Street
- Martin Luther King Jr. Way and 29th Street
- Martin Luther King Jr. Way and 34th Street

In additions to these collected intersections, two additional intersections were analyzed using previous counts taken on Tuesday, June 20, 2006. These counts were performed for the MacArthur Transit Village EIR. The two intersections from the MacArthur Transit Village EIR were:

- Martin Luther King Jr. Way and West MacArthur Boulevard
- Martin Luther King Jr. Way and 40th Street

Peak hour traffic volumes for existing conditions are shown in Exhibit 6.

## 2035 PEAK HOUR INTERSECTION TURNING VOLUMES

Future traffic forecast volumes were estimated from the official version of Alameda Countywide travel demand model, which reflects land uses from ABAG Projection 2007. The future forecast year was estimated for cumulative long term 2035. Along the Martin Luther King Jr. Way corridor, 2035 forecast estimated approximately 10-30% of growth for the minor streets. Larger streets like MacArthur Boulevard and 27th Street had significantly higher growths, especially in the eastbound and westbound direction. Future intersection volumes were developed using these model growth factors. Peak hour traffic volumes for 2035 are shown in Exhibit 7

Exhibit 6 - Intersection Turn Movement Volumes along Martin Luther King Jr. Way

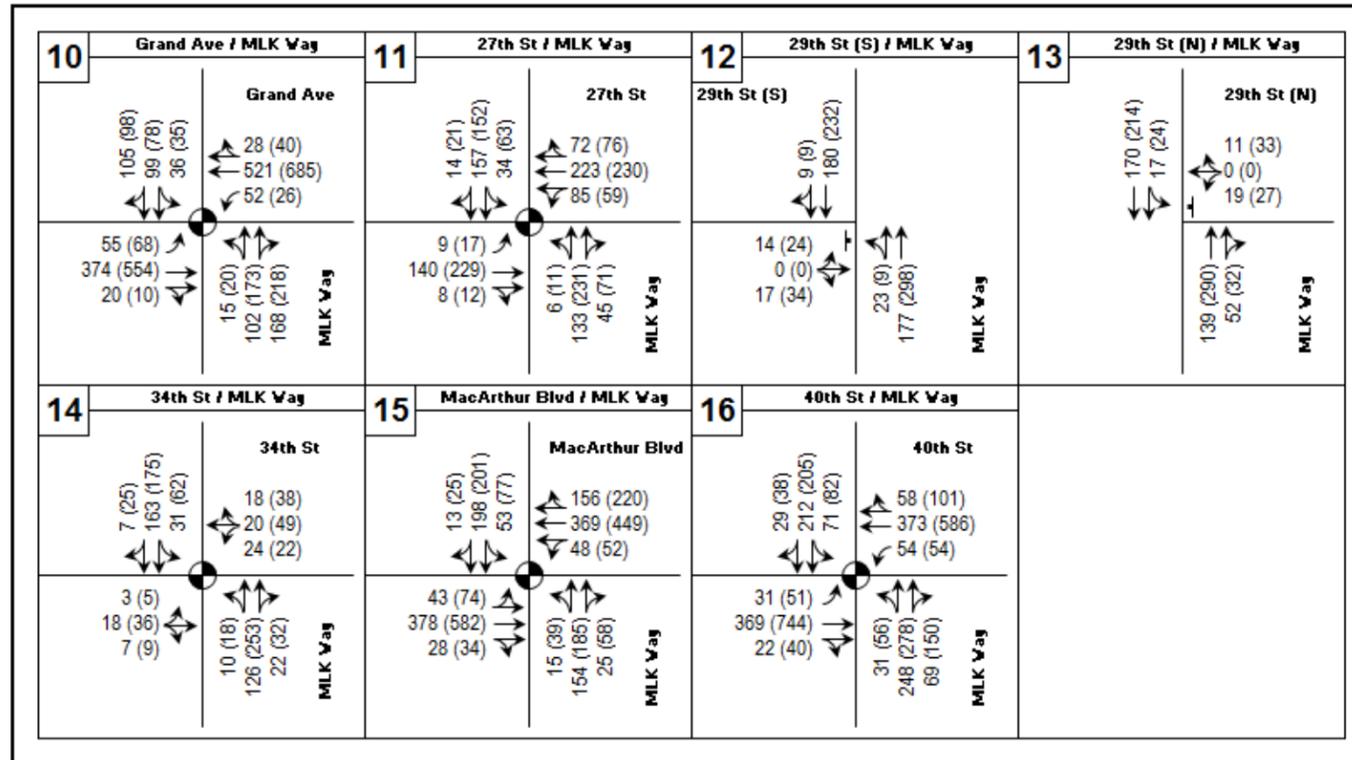
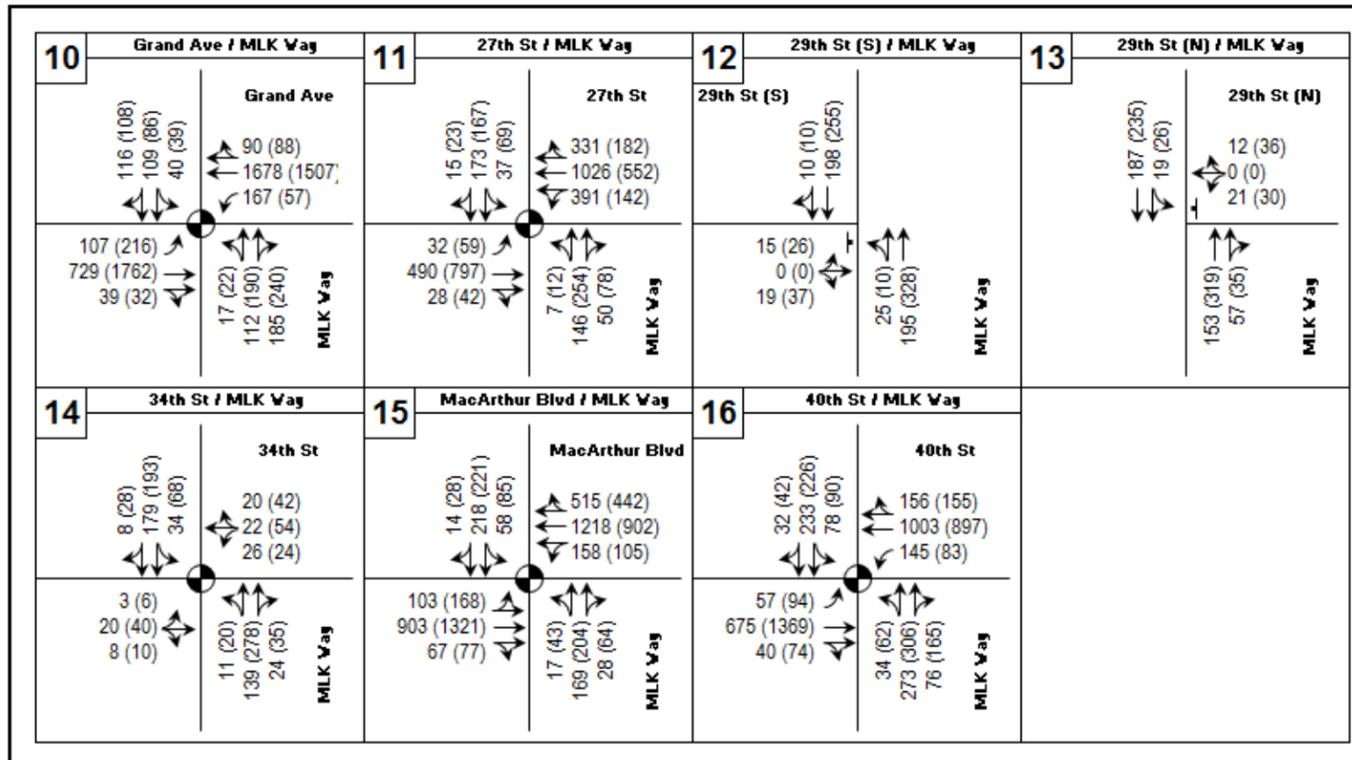


Exhibit 7 - Forecasted 2035 Volumes along Martin Luther King Jr. Way



**KEY**  
 31 (27) = AM (PM) peak hour traffic volumes  
 = Signalized intersection  
 = Intersection approach lane  
 = Stop Sign

### INTERSECTION ANALYSIS

Traffic levels of service (LOS) at study intersections were analyzed for the A.M. and P.M. peak hours using methodologies described in the Highway Capacity Manual. The LOS for signalized and unsignalized intersections is defined in terms of delay. Delay is a complex measure and is dependent upon a number of variables. The most basic of these is the number of vehicles in the traffic stream, but for signalized intersections, delay is also dependent on the quality of signal progression, the signal cycle length, and the “green” ratio for each approach or lane group. The LOS criteria for signalized intersections are shown in Exhibit 8, and Exhibit 9 shows the criteria for unsignalized intersections.

<b>Exhibit 8</b>		
<b>Level of Service Criteria – Signalized Intersections</b>		
Level of Service (LOS)	Average Delay (seconds/vehicle)	Description
A	≤ 10	Very Low Delay: This level of service occurs when progression is extremely favorable and most vehicles arrive during a green phase. Most vehicles do not stop at all.
B	> 10 and ≤ 20	Minimal Delays: This level of service generally occurs with good progression, short cycle lengths, or both. More vehicles stop than at LOS A, causing higher levels of average delay.
C	> 20 and ≤ 35	Acceptable Delay: Delay increases due to only fair progression, longer cycle lengths, or both. Individual cycle failures (to service all waiting vehicles) may begin to appear at this level of service. The number of vehicles stopping is significant, though many still pass through the intersection without stopping.
D	> 35 and ≤ 55	Approaching Unstable Operation/Significant Delays: The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume / capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	> 55 and ≤ 80	Unstable Operation/Substantial Delays: These high delay values generally indicate poor progression, long cycle lengths, and high volume / capacity ratios. Individual cycle failures are frequent occurrences.
F	> 80	Excessive Delays: This level, considered unacceptable to most drivers, often occurs with over-saturation (that is, when arrival traffic volumes exceed the capacity of the intersection). It may also occur at nearly saturated conditions with many individual cycle failures. Poor progression and long cycle lengths may also contribute significantly to high delay levels.

*Source: Transportation Research Board, Highway Capacity Manual, Washington, D.C., 2000, pages 10-16 and 16-2.*

**OPERATIONAL ANALYSIS OF SUGGESTED CHANGES TO MARTIN LUTHER KING JR. WAY**

The suggested changes along Martin Luther King Jr. Way that would impact traffic operations were all tested in SYNCHRO to determine the impact on existing and 2035 conditions. For the 2035 conditions it was assumed that signal timings would be optimized as a result of the construction of the suggested changes. A comparison of no project conditions with applying the suggested opportunities for existing and 2035 conditions are shown in Exhibit 10 and Exhibit 11, respectively. As these exhibits show, the suggested changes will not cause a significant impact.

<b>Exhibit 9</b>	
<b>Level of Service Criteria – Stop Controlled Intersections</b>	
Level of Service	Average Control Delay (seconds/vehicle)
A	0 - 10
B	>10 - 15
C	>15 - 25
D	>25 - 35
E	>35 - 50
F	>50

*Source: Transportation Research Board, Highway Capacity Manual, Washington, D.C., 2000, pages 10-16 and 16-2.*

**Exhibit 10 - Comparison of Existing Conditions and Existing Conditions with Opportunities along Martin Luther King Jr. Way**

Intersection	Control	Existing				Existing + Project				
		AM Peak		PM Peak		AM Peak		PM Peak		
		LOS <sup>1</sup>	Delay <sup>2</sup>	LOS <sup>1</sup>	Delay <sup>2</sup>	LOS <sup>1</sup>	Delay <sup>2</sup>	LOS <sup>1</sup>	Delay <sup>2</sup>	
10	Grand Ave & MLK Way	Signal	B	12.2	B	12.4	B	12.2	B	12.4
11	27th St & MLK Way	Signal	B	13.0	B	14.8	B	14.2	B	15.3
12	29th St & MLK Way (S)	TWSC	A (B)	1.4 (10.3)	A (B)	1.3 (12.4)	A (B)	1.4 (10.8)	A (B)	1.4 (13.9)
13	29th St & MLK Way (N)	TWSC	A (B)	1.2 (10.3)	A (B)	1.7 (12.3)	A (B)	1.2 (10.7)	A (B)	1.8 (13.7)
14	34th St & MLK Way	Signal	A	9.8	B	10.3	A	8.8	A	9.5
15	MacArthur Blvd & MLK Way	Signal	B	12.8	B	14.5	B	14.0	B	14.2
16	40th St & MLK Way	Signal	B	13.5	B	14.1	B	14.2	B	15.1

Source: Dowling Associates, 2011

Notes:  
 Highlighted items indicate unacceptable LOS.  
<sup>1</sup> LOS = Level of Service  
<sup>2</sup> Average control delay in seconds per vehicle  
<sup>3</sup> Stop-controlled intersections report both the intersection control delay/LOS and the worst approach control delay/LOS (in parenthesis)

**Exhibit 11 - Comparison of 2035 Conditions and 2035 Conditions with Opportunities along Martin Luther King Jr. Way**

Intersection	Control	2035				2035 + Project				
		AM Peak		PM Peak		AM Peak		PM Peak		
		LOS <sup>1</sup>	Delay <sup>2</sup>							
10	Grand Ave & MLK Way	Signal	B	14.8	D	39.6	C	21.6	D	48.1
11	27th St & MLK Way	Signal	C	22.9	C	26.4	C	23.7	B	16.9
12	29th St & MLK Way (S)	TWSC	A (B)	1.3 (11.6)	A (B)	1.4 (12.9)	A (B)	1.3 (12.5)	A (B)	1.5 (14.9)
13	29th St & MLK Way (N)	TWSC	A (B)	1.3 (11.0)	A (B)	1.8 (13.1)	A (B)	1.3 (11.7)	A (B)	1.9 (14.8)
14	34th St & MLK Way	Signal	A	9.9	B	10.5	A	8.8	A	9.7
15	MacArthur Blvd & MLK Way	Signal	B	16.3	B	15.8	B	16.0	B	18.4
16	40th St & MLK Way	Signal	B	19.0	B	19.8	B	19.4	C	20.5

Source: Dowling Associates, 2011

Notes:  
 Highlighted items indicate unacceptable LOS.  
<sup>1</sup> LOS = Level of Service  
<sup>2</sup> Average control delay in seconds per vehicle  
<sup>3</sup> Stop-controlled intersections report both the intersection control delay/LOS and the worst approach control delay/LOS (in parenthesis)

## Traffic Safety

Collision data were collected using the California Highway Patrol's Statewide Integrated Traffic Records System (SWITRS) data base. This data was used to provide a generalized traffic safety assessment of Martin Luther King Jr. Way where there is an opportunity to perform a road diet. Collisions between January 1, 2005 and January 1, 2010 were therefore analyzed. Those occurring within 100 feet of the intersection were grouped as intersection related collisions while those greater than 100 feet were grouped as midblock collisions. The results of this analysis are reported in a following section.

Collision reports for the proposed road diet area show that over a five year period (January 1, 2005 to January 1, 2010) there were a total of 227 collisions. The majority (212) of these collisions were at intersections while the remaining (15) were located somewhere midblock. A breakdown of the collision locations is Exhibit 12.

**Exhibit 12 - Collision Locations along Martin Luther King Jr. Way**

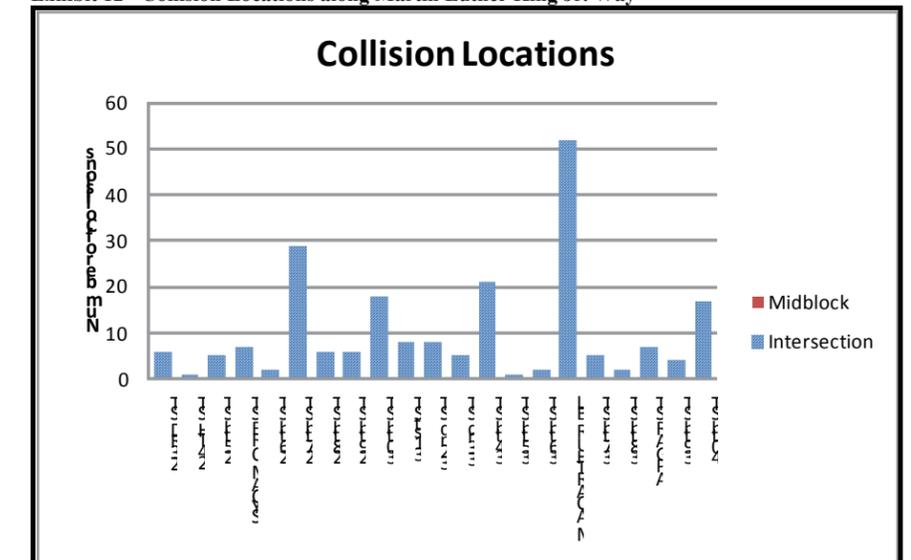
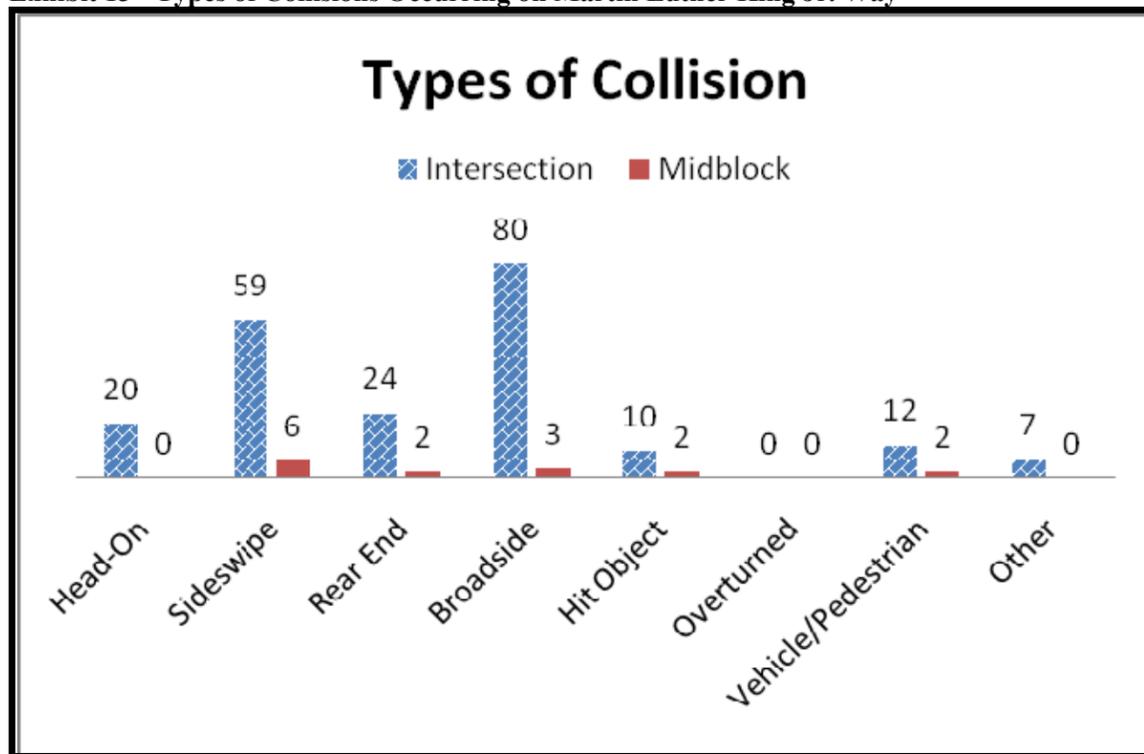


Exhibit 13 - Types of Collisions Occurring on Martin Luther King Jr. Way



In addition to the collision locations, Exhibit 13 through Exhibit 15 show the types of collisions, collision factors, and the severity of injuries, respectively.

### Potential Safety Effects of Suggested Changes

The 2006 Collision Data on California State Highways (Caltrans 2007) provides statewide average collision rates for various roadway facility types. The Caltrans data indicate that undivided 4-lane urban roads with speeds less than 45 mph have 4.95 collisions per million vehicle miles. Conventional 3-lane urban roads have a collision rate of 2.05 collisions per million vehicle miles. This information indicates that collisions are likely to be significantly reduced on Martin Luther King Jr. Way by conversion from a 4-lane road to a 3-lane road (road diet).

Similarly, urban signalized intersections have a collision rate of 0.43 collisions per million vehicle miles and two-way stop/yield controlled intersections have a collision rate of 0.22 collisions per million vehicle miles. This information indicates that if a traffic signal does not satisfy one or more traffic signal warrants, controlling the intersection with two-way stop controls would significantly reduce collisions.<sup>3</sup>

Exhibit 14 - Causes of Collisions on Martin Luther King Jr. Way

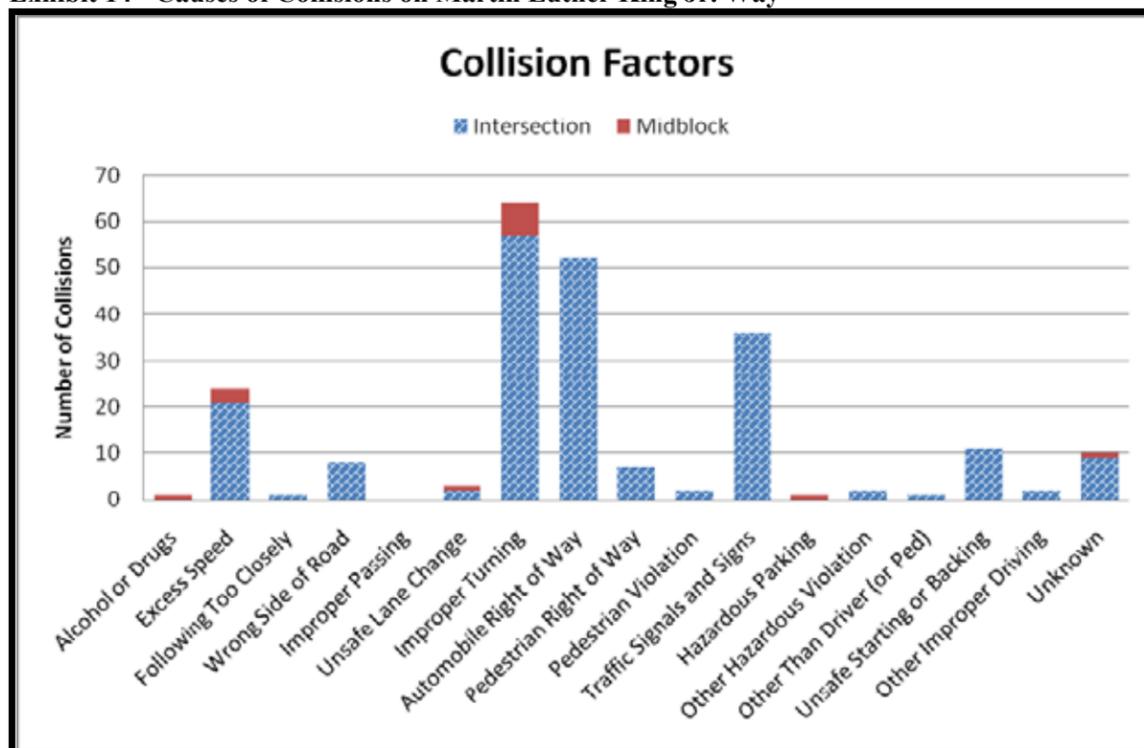


Exhibit 15 - Types of Injuries on Martin Luther King Jr. Way

