

NORWOOD AREA CIRCULATION AND INFRASTRUCTURE PLAN

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Abbreviations and Terms

ADA	Americans with Disabilities Act
ADT	Average Daily Traffic
ADWF	Average Dry Weather Flow
ARFCD	American River Flood Control District
Caltrans	California Department of Transportation
CIP	Capital Improvement Program
City	City of Sacramento
DU	Dwelling Unit
DWR	Department of Water Resources
I-80	Interstate 80
mph	Miles per Hour
NEMDC	Natomas East Main Drainage Canal
PBS&J	Post, Buckley, Schuh, and Jernigan Incorporated
PDWF	Peak Dry Weather Flow
Potable Water	Water safe for drinking
PVC	Polyvinyl chloride
RT	Sacramento Regional Transportation District
SF	Square Footage
SHRA	Sacramento Housing and Redevelopment Agency
SMUD	Sacramento Municipal Utility District
TBR	General Plan Technical Background Report, June 2005
TPG	Sacramento's Transportation Programming Guide 2006
WYA	West Yost and Associates

Executive Summary

Acknowledging the rapid infill of an area north of downtown Sacramento, staff from the City of Sacramento (City) obtained a Caltrans-sponsored Environmental Justice grant to evaluate the circulation patterns and adequacy of the infrastructure for an area identified for this project as the Norwood area. In July 2006 the City engaged PBS&J to complete this report. Three community meetings were held between October 2006 and February 2007 to gather input and ideas. Based on the valuable community feedback, research of existing records and reports, discussion with City staff, and site visits, PBS&J prepared a series of technical memoranda describing the existing conditions and providing general recommendations. This report assesses the current circulation patterns and existing infrastructure conditions, and makes recommendations for improvements to accommodate the current and future development.

The Norwood area encompasses approximately 250 acres and has remained semi-rural in character. However, improvements and developments throughout the Norwood area are quickly changing the area into a more dense residential community. Because current zoning allows for more homes to be built per acre than what currently exists on many of the parcels, owners are subdividing their lots to build small tract home communities. This development is occurring quickly and on non-contiguous parcels, making it difficult to provide uniform traffic circulation and efficient utility infrastructure improvements. As a result, improvements are occurring in a seemingly random manner.

A summary of the major issues include:

- Morey Avenue, South Avenue, and Western Avenue are in need of wider and well-paved streets
- Sidewalks are needed throughout the Norwood area; priority should be given to Morey Avenue for access to the Morey Avenue Early Childhood Development Center
- Street lighting is needed throughout the Norwood area for pedestrians, bicyclists, and motorists
- Bikeway improvements are needed
- Traffic calming devices are needed to address excessive speeding throughout the Norwood area; priority should focus on Morey Avenue
- Trash, appliances, and furniture are routinely abandoned along Western Avenue
- Large trucks from the industrial complex north of the Norwood area park and travel on Morrison Avenue

East-west access into and through the project area is provided by Morrison Avenue, Morey Avenue, South Avenue, Silver Eagle Road, and Ford Road. North-south access is limited to Western Avenue and Norwood Avenue. Western Avenue and Silver Eagle Road do not connect. Consistency in the improvement of the primary streets will contribute to uniform appearance, increased safety, and promote various modes of circulation within the Norwood area. City staff has established criteria for consistent roadway cross sections and right-of-way requirements which staff is using to condition tentative maps. This report affirms those criteria and provides the following circulation and roadway recommendations:

- Condition tentative maps to include 53-foot right-of-way residential street cross sections for all primary east-west roads and certain north-south roads that will provide connectivity in the project area; this cross section includes a 6-foot parkway between the sidewalk and the curb
- Condition tentative maps to include 41-foot right-of-way residential street cross sections for internal tract roads; this cross section does not include a 6-foot parkway

- Proceed with the planned improvement of Silver Eagle Road to a 57-foot right-of-way cross section which should include a class II on-street bike lane in each direction
- Develop a connection between Silver Eagle Road and Western Avenue
- Encourage the establishment of north-south connectivity to provide internal access between Morrison Avenue and Silver Eagle Road
- Acquire adequate right-of-way, where necessary, to complete the recommended road cross sections

The Norwood area is deficient in neighborhood and community parks by 17.4 acres. City staff should work diligently with developers to identify locations to locate park facilities throughout the area. Furthermore, the utilities serving the area require improvements and upgrades to meet future demands, especially when development reaches its projected build-out. The City should consider the following infrastructure recommendations:

- Identify areas to locate neighborhood and community parks
- Conduct a potable water system study to establish minimum pipe diameters and pressure requirements for build-out
- Install potable water pipes to create a looped system which will reduce water service disruption and provide more reliable fire protection service
- Complete the Storm Drainage Master Plan for Basin 157, currently underway
- Construct storm water detention ponds as indicated by the Storm Water Drainage Master Plan, upsize and install new storm drainage pipes, and install curb, gutter and storm inlets to control and convey storm water runoff
- Initiate a Storm Water Drainage Master Plan for Basin 158
- Conduct inspection and assessment of the sanitary sewer system to determine the adequacy and remaining life of the existing sewer system
- Install street lights to improve safety and visibility
- Coordinate the conversion of overhead utilities to underground utilities with street improvements

While the rate of development will dictate the speed with which improvements should occur, tentative map applications are routinely being submitted to the City. To accommodate the expected development, the following improvements should be completed within the next 5 to 7 years:

- Stripe the bicycle lanes on Norwood Avenue; this conforms with the City's Bikeway Master Plan
- Improve Morey Avenue with a wider road, curb, gutter, sidewalks, storm drains, and street lighting; this will provide a safer environment for the students, parents, and educators attending Morey Avenue Early Childhood Development Center as well as the local residents
- Add signage along Western Avenue indicating 24-hour surveillance and fines for illegal dumping in an effort to reduce or eliminate the trash
- Implement mitigation measures to deter large truck traffic along Morrison Avenue to address community concerns about large trucks on the street
- Complete a looped water system to improve reliability and provide fire service to all of the Norwood Area.

Chapter 1

Introduction

Well-planned communities instill a sense of pride, safety, and diversity, making them desirable locations to live. Conventional planning and development strategies that are appropriate for new communities on undeveloped land, do not effectively lend themselves to improving existing and mature neighborhoods. Resolving issues such as increased traffic congestion, compatible development concepts, and citizen concerns requires a blend of planning techniques and community input to effectively improve existing urban communities. Because of the unique issues related to the urbanization of existing neighborhoods, the City of Sacramento (City) has developed a *Citywide Infill Strategy* to promote quality infill development. Infill development is the process of developing vacant or under-used parcels within existing urban areas that are already largely developed. Most communities have a significant amount of potential for infill and redevelopment on lots where existing uses are no longer viable due to changes in development trends, shifting economic and industrial patterns, demographic changes, and competition from newer areas.

Similarly, the Environmental Justice Program, administered by the California Department of Transportation (Caltrans), promotes planning in diverse communities and provides local citizens the opportunity to become active stakeholders in transportation planning and project development. In coordination with districts and local governments, Caltrans strives to integrate environmental justice into the planning and decision-making process for transportation related projects and engage community stakeholders early in the process to prevent or mitigate adverse impacts of plans, programs, and projects on their communities. Acknowledging the rapid infill of an area north of downtown Sacramento, City staff obtained an Environmental Justice Program grant in late 2005 to assess the circulation patterns and adequacy of the infrastructure, as well as recommend improvements, for an area generally identified in this report as the Norwood area (see Figure 1-1).

In July 2006 the City engaged PBS&J to complete the assessment and make improvement recommendations. Based on research of existing records and reports, and discussion with City staff and site visits, PBS&J prepared a series of technical memoranda describing the existing conditions for circulation and the infrastructure and provided general recommendations. Three community meetings were held between October 2006 and February 2007 to present information and recommendations, and to gather input from residents and land owners in the area. This valuable community feedback, along with the assessment data on existing infrastructure conditions and sound engineering practices, form the basis of this report which offers recommendations for the future development of the Norwood area.

**Figure 1-1
Location Map**



1.1 Purpose and Organization of this Report

This report is intended to provide guidance to the City staff for the planning and development of the Norwood area to adequately address the demands that the anticipated new residents will place on the streets, utilities, and other amenities. Included are recommendations to promote efficient movement of citizens within the project boundary while utilizing the existing system to its fullest extent.

Chapter 1 includes an overview of the Norwood area, a description of its zoning, and a summary of the existing circulation and infrastructure conditions. Chapter 2 includes a description of the circulation elements considered and recommendations for circulation improvements to guide future transportation planning and development within the Norwood area. Chapter 3 includes recommendations for utility improvements to increase reliability and maintain acceptable levels of service and address parkland requirements within the project area. Chapter 4 presents implementation recommendations phasing for the improvements along with preliminary costs. These recommendations incorporate existing conditions, future estimated population demands using the current zoning information obtained from the City of Sacramento, and local residents' input.

1.2 Norwood Area General Overview

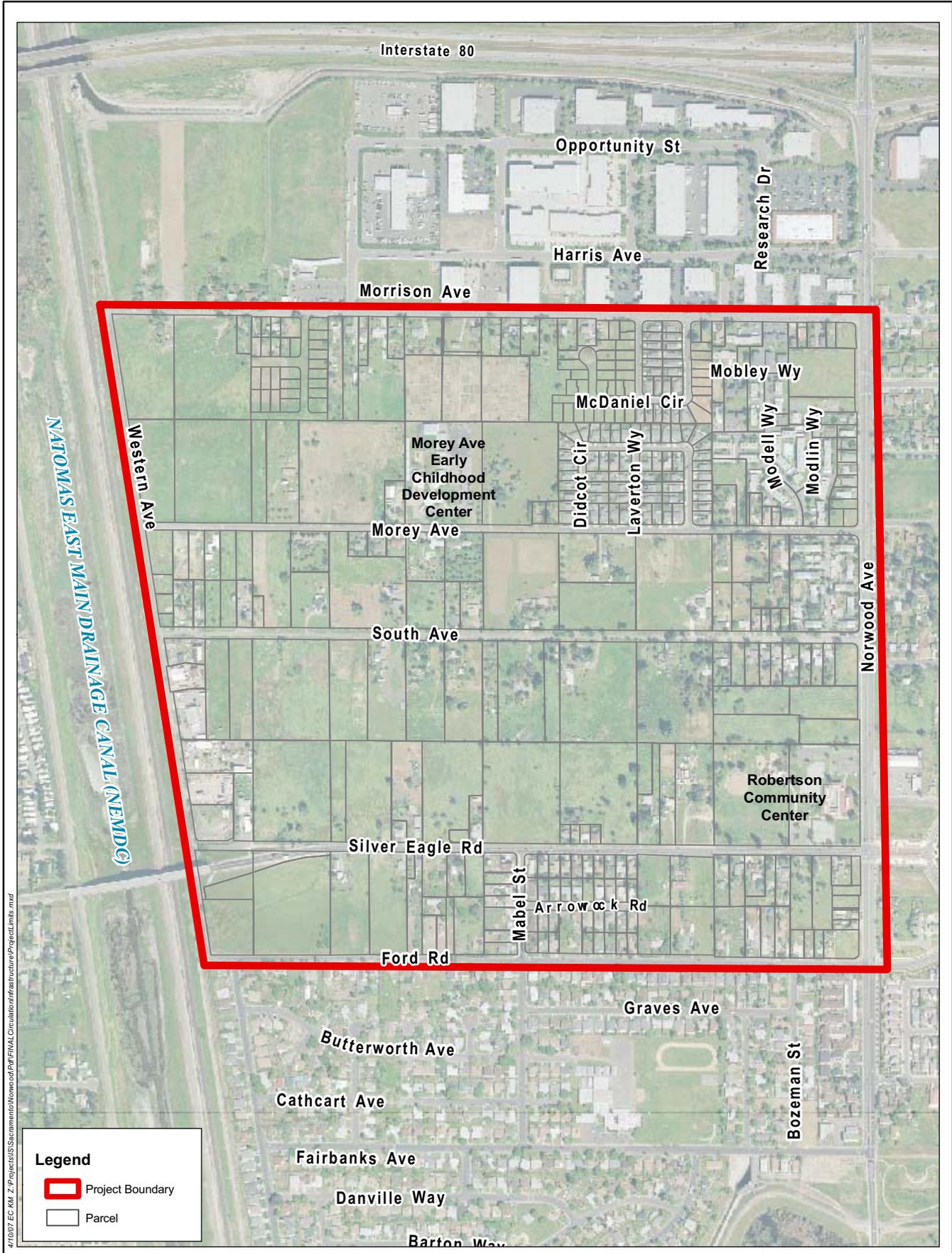
The Norwood project area, consisting of portions of the City's Oak Knoll, Johnson Heights, and Strawberry Manor neighborhoods, is located in North Sacramento south of Interstate 80 (I-80). It is bordered by Morrison Avenue to the north, Ford Road to the south, Norwood Avenue to the

east and Western Avenue to the west (see Figure 1-2 on the following page). Nestled up against the east bank of the Natomas East Main Drainage Canal (NEMDC), and bounded by an industrial park to the north and residential properties to the south, the Norwood area is a pocket community, which virtually draws only local traffic. It is accessible primarily from Norwood Avenue on the east and Silver Eagle Road which traverses the area in an east-west direction. The area encompasses approximately 250 acres and has remained semi-rural in character. However, improvements and developments throughout the Norwood area are quickly changing the area into an urban and suburban community.

The Norwood area boasts some prominent features that serve the community. The first is the Robertson Community Park and Center at the corner of Norwood Avenue and Silver Eagle Road. Robertson Community Park provides recreation programs, lighted softball and soccer fields, basketball and tennis courts, a wading pool, picnic areas, and buildings for meetings and social use. The Morey Avenue Early Childhood Development Center on Morey Avenue provides school facilities for students between the ages of three and five in preparation for entering the traditional kindergarten through twelfth grade school system. Also at the school are several acres of lush demonstration gardens where youths learn the techniques for growing fruits and vegetables and the value of eating healthy.

The area has a very diverse population. Data from the 2000 Census shows that approximately 1,860 residents live within or adjacent to the Norwood area. People identified themselves with the following ethnic origins: 33% white; 22% black or African American; 17% Asian; 11% Native Hawaiian or Other Pacific Islander; 3% American Indian or Alaska Native; and 4% as some other race. Ten percent identified themselves as being of two or more races. At least seven languages are spoken in the Norwood area with 47.5% of the residents speaking English only. Of the remaining 52.5% residents, they identified their primary language as one of the following: Spanish, Russian, Chinese, Miao or Hmong, Laotian, an Indo-European language, a Pacific Island language, or another language. The median family income for the area was \$24,444 in 2000.

The land uses in the Norwood area include single-family residential, multi-family residential, light industrial, and some mixed residential use. In addition to several vacant lots, many other parcels are underutilized. Because the current zoning allows for more homes to be built per acre than what currently exists on many of the parcels, owners are subdividing the lots to build small tract home communities. This development is occurring quickly and on non-contiguous parcels, making it difficult to provide uniform traffic circulation and efficient utility infrastructure improvements. As a result, the transportation and utility infrastructure is occurring in a seemingly random manner. An overall vision for the Norwood area will guide development, reduce community disruptions, minimize small and isolated tracts, and unify the neighborhoods for enhanced community pride and enjoyment.



4/10/07 EC KM ZIP Projects/S/Sacramento/Morewood/PA/PA/Circulation/Infrastructure/ProjectLimits.mxd

Legend

- Project Boundary
- Parcel

Map Sources: City of Sacramento, 2005 (Aerial);
Boundary Solutions, 2006 (Parcels)

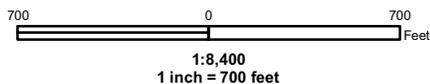


Figure 1-2
Norwood Project Limits

1.3 Description of Existing Conditions

To determine the existing conditions and functionality of the area’s infrastructure, PBS&J reviewed documents provided by the City, conducted site visits to document current conditions, and interviewed staff knowledgeable of the area’s history and status. During the site visits, the team identified narrow roads, few sidewalks along the more heavily traveled streets, and inadequate lighting throughout most of the area. Figure 1-3 is an example of the general condition of roads in the area. The disconnected new developments have contributed to an inconsistency in street width, sidewalk, curb and gutter type, and location of lighting. In addition, there is a general lack of traffic regulating and calming devices and inadequate compliance with the Americans with Disabilities Act (ADA) requirements, particularly in the older areas of the neighborhood. Localized flooding is exacerbated by the deficient and poor condition of the existing roadway and drainage infrastructure.

This section provides details about the existing conditions in the Norwood area starting with a discussion of zoning and land use, followed by information on the circulation patterns and roadway infrastructure. Additionally included is a discussion pertaining to existing utilities and current service levels provided to residents.

**Figure 1-3
Example of Existing Conditions – South Avenue**



1.3.1 Zoning and Land Use

Current zoning regulations have existed in the Norwood area since the 1980’s. Figure 1-4 shows the zoning designations for each parcel. Table 1-1 is a summary of the current zoning designations and associated acres for each zone type. The City’s General Plan establishes ranges of allowable dwelling units (DU) per acre for each type of residential zoning. Based on the General Plan, existing developments, and the densities being approved through the tentative map process, the average allowable DU per acre, and the total dwelling units per zoning type are shown in Table 1-1 as well.

**Table 1-1
Current Zoning for the Norwood Area**

Zoning	Land Use Designation	Approximate Acres	Average Allowable DU/Acre	Total DU
R-1	Standard Single Family	168.9*	8	1,351
R-1A	Single Family Alternative	47.3	12	568
R-2A	Multi-Family	3.0	17	51
R-2B	Multi-Family	6.5	21	137
R-3	Multi-Family (higher density)	14.3	29	415
M-1	Light Industrial	7.5	-	-
Mixed Use	Residential Mixed Use	0.9	-	-
TOTAL		248.4		

* Includes Morey Avenue Early Childhood Development Center and Robertson Community Park

As noted in Table 1-1, a majority of the Norwood area is zoned for single family residential. The multi-family and mixed used areas are along or adjacent to Norwood Avenue. Eight parcels along Western Avenue, north of Silver Eagle Road, comprise the light industrial area. A storage and repair yard located along Western Avenue is used by a busing company and is the primary business in the area. Access to the light industrial land is through the residential areas, since there is no direct access to Silver Eagle Road from Western Avenue. The Robertson Community Park and Recreation Center at the corner of Norwood Avenue and Silver Eagle Road provides recreation amenities for the Norwood area. The Morey Avenue Early Childhood Development Center serves pre-kindergarten students. The school also manages several acres of demonstration gardens just north of the school site.

1.3.2 Circulation Patterns and Roadway Conditions

To reach the Norwood area one must approach from either Norwood Avenue or Silver Eagle Road. Norwood Avenue provides the most direct access to Interstate 80 (I-80) to the north and access to areas south of Arcade Creek. Silver Eagle Road provides access to areas west of the Natomas East Main Drainage Canal (NEMDC) and offers the only east-west access through the Norwood area connecting it to adjacent neighborhoods and communities. Figure 1-5 shows the project area and the physical barriers that confine circulation in the Norwood area to generally local traffic access.

Within the project area, east-west access is provided by Morrison Avenue, Morey Avenue, South Avenue, Silver Eagle Road, and Ford Road. North-south access is limited to Western Avenue and Norwood Avenue. Western Avenue has no connection to Silver Eagle Road. The Norwood area's existing traffic circulation patterns are illustrated in Figure 1-5.

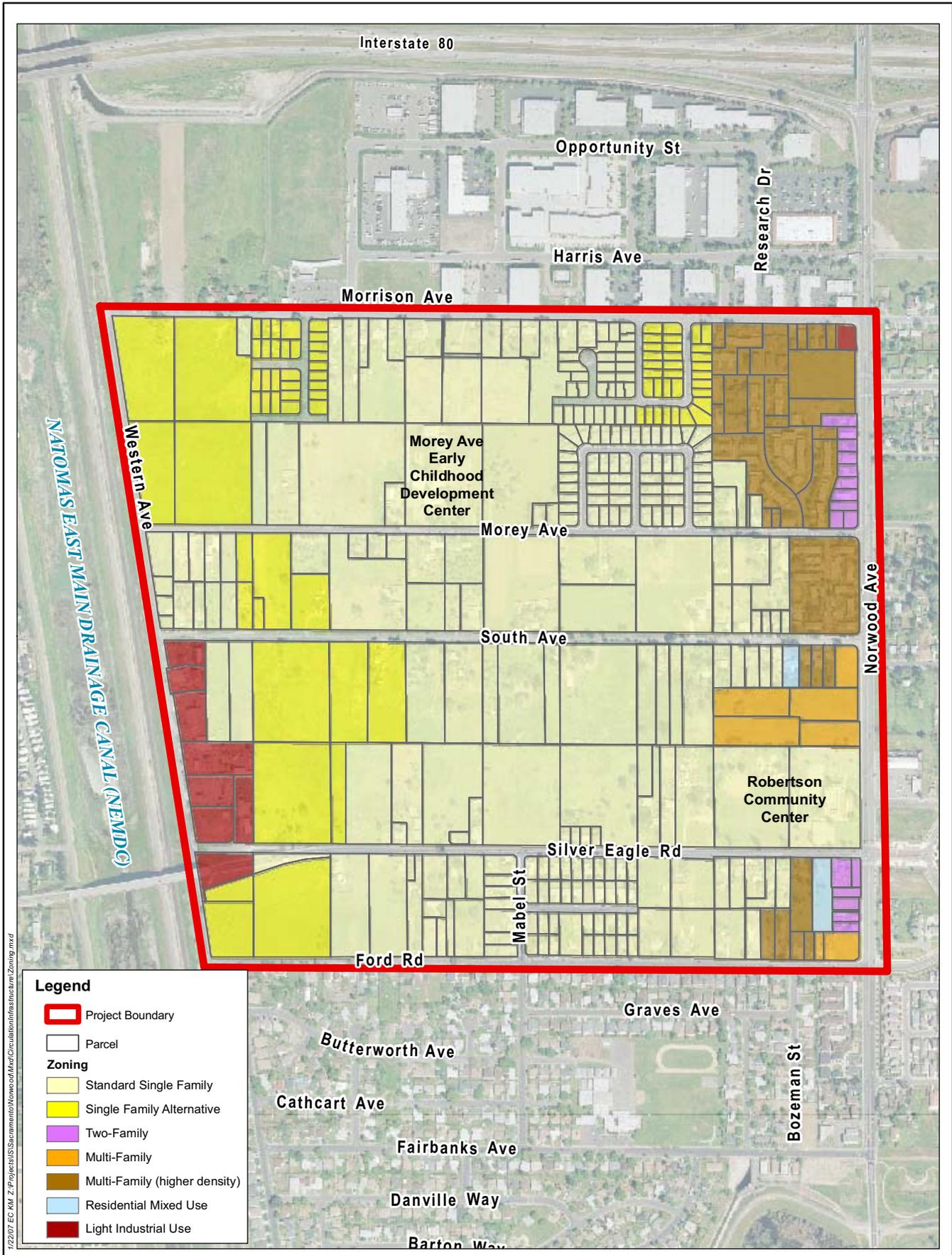
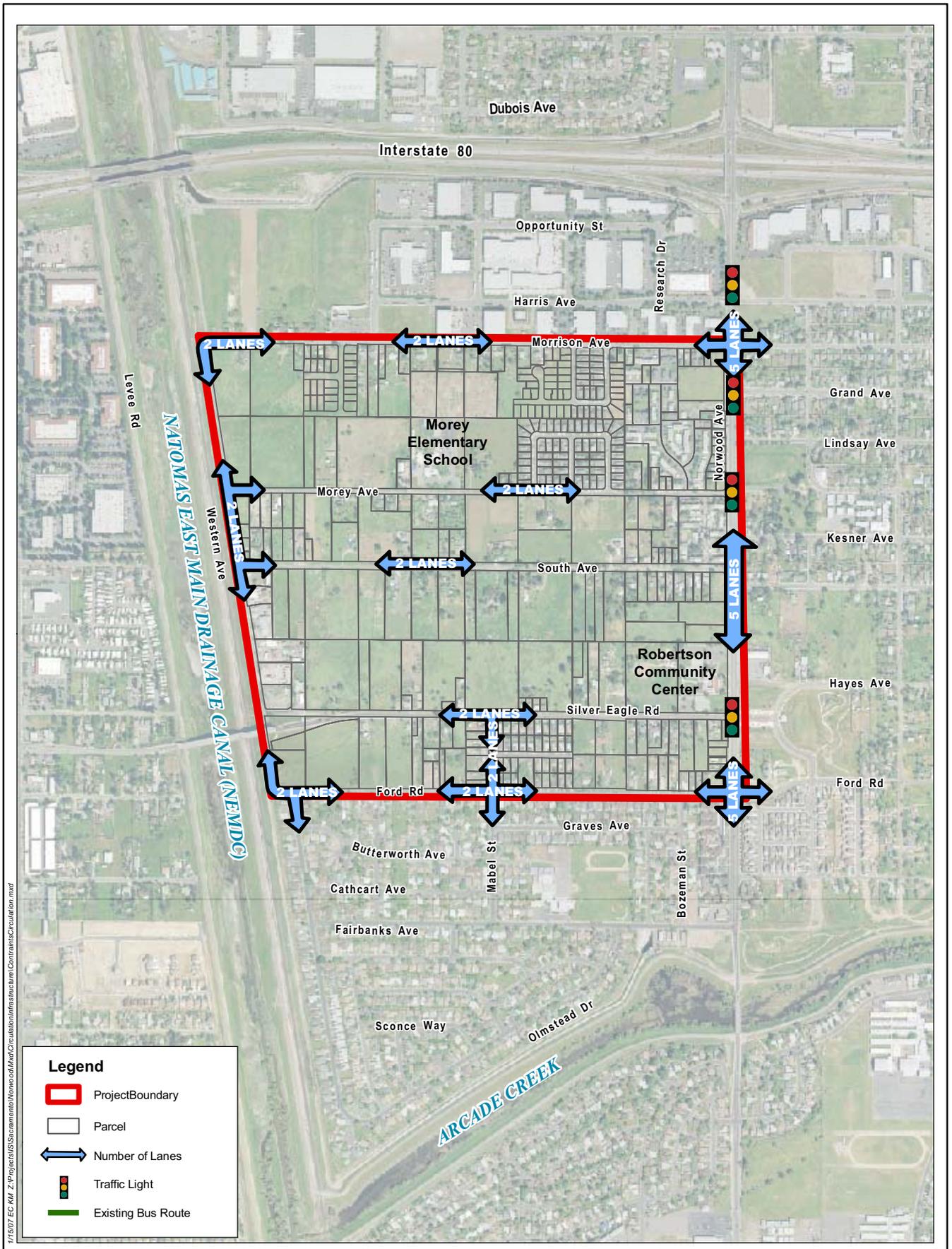


Figure 1-4
Zoning Designations



Map Sources: City of Sacramento, 2005 (Aerial);
Boundary Solutions, 2006 (Parcels)

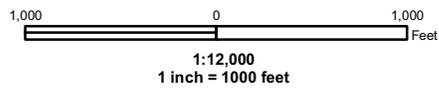


Figure 1-5
Norwood Area Constraints
and Existing Circulation Patterns

Bikeways

Bikeways provide recreational and transportation benefits for commuter bicyclists. They promote bicycling as a recreational activity and an alternative form of transportation. The *2010 Sacramento City/County Bikeway Master Plan (Bikeway Master Plan)* classifies bikeways in three ways:

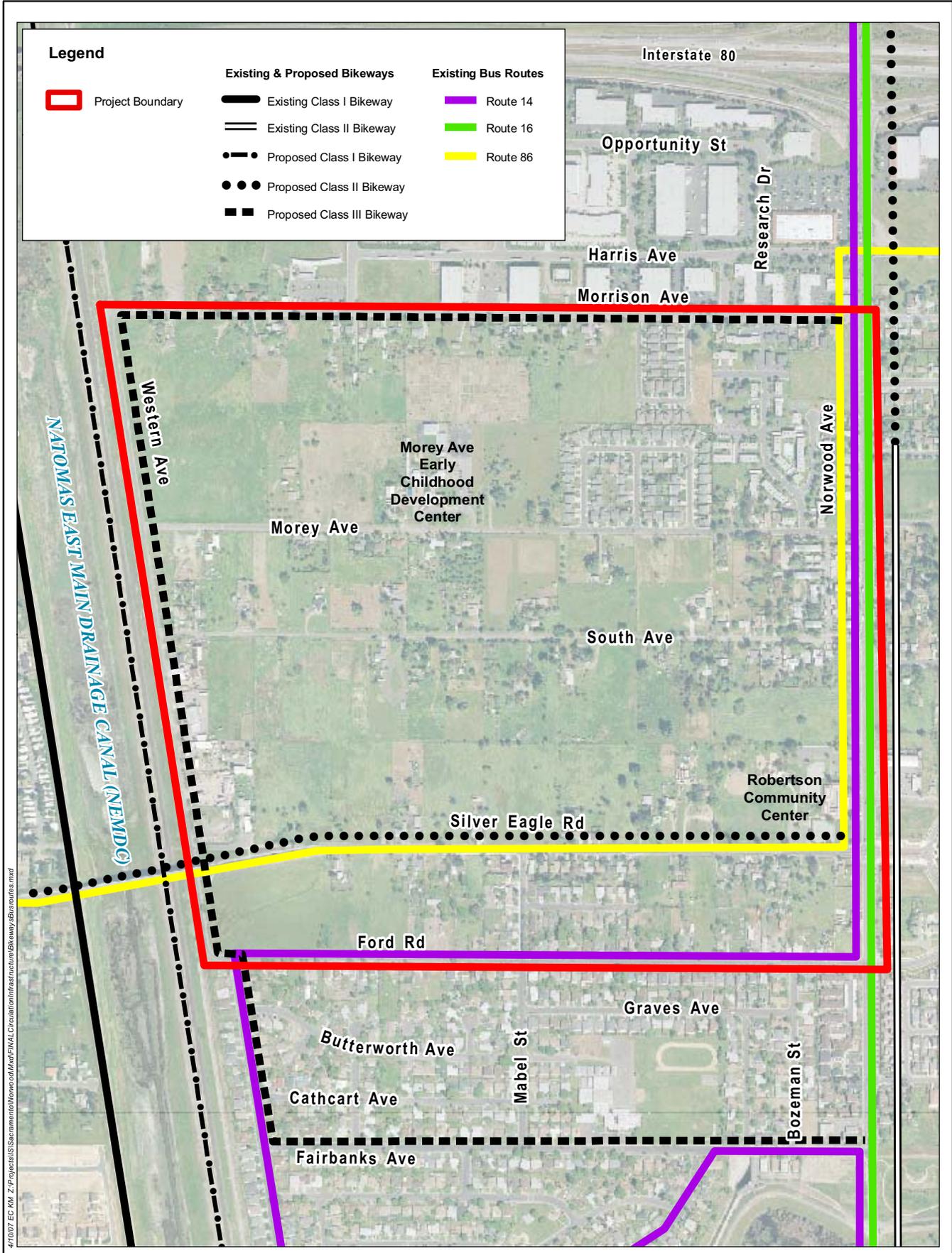
- Class I (Bike Trail or Bike Path) – a facility that is designated for bicycle use and is completely separated from any street or highway by a physical space, berm, fence, or other barrier.
- Class II (Bike Lane) – a lane within a street or roadway designed for the one-way use of bicycles. A bike lane is an on-street facility with signs, striped lane markings, and pavement legends.
- Class III (Bike Route) – any street right-of-way recommended for bicycle travel which provides for shared use with motor vehicles or pedestrian traffic.

Class II bike lanes currently exist on Norwood Avenue from Grand Avenue southward. However, they are not striped. Class II bike lanes are planned on Norwood Avenue north of Grand Avenue. The *Bikeway Master Plan* recommends on-street bikeways along Morrison Avenue, Silver Eagle Road, and Western Avenue. Figure 1-6 shows the locations of the existing and proposed bikeways for the Norwood area based on the Bikeway Master Plan.

Regional Transit

Sacramento Regional Transportation District (RT) operates three transit routes in the Norwood area. Route 14 runs along Norwood Avenue, north of Ford Road, and along Ford Road between Norwood Avenue and Western Avenue, then along Western Avenue south of Ford Road. Route 86 runs along Silver Eagle Road, ultimately connecting to light rail stations at both termination points of the route. Both of these routes have reduced service on Saturdays, Sundays, and holidays. Route 16 runs along Norwood Avenue but does not operate on Saturdays, Sundays, or holidays. The routes are shown in Figure 1-6 above.

Each route falls into a different route classification defined by RT. Route classifications group the various routes according to the transportation service offered and the population served. The route classification sets the ridership service standard that establishes the minimum ridership level per hour to make operating a particular route cost effective. Table 1-2 shows the route classification, the standard ridership, and the average ridership per hour for fiscal year 2006. Below is a description of the route types that serve the Norwood area.



Map Sources: City of Sacramento, 2005 (Aerial);

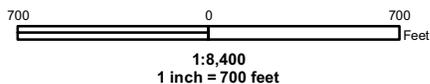


Figure 1-6
Bikeways & Busroutes

**Table 1-2
Route Type and Average Ridership Counts**

Route No.	Route Type	FY06 Ridership Service Standard	FY06 Average Ridership per hour
14	Feeder	15.9	24
86	Radial	17.6	31
16	Shuttle	5.5	12

Feeder – Routes designed to channel passengers to transit centers to facilitate transfers to Commuter and Radial routes or light rail; operates throughout the day.

Radial – Frequent stop routes that carry passengers to and from the Central Business District along primary surface streets from various outlying communities; operates throughout the day.

Shuttle – Neighborhood service that often uses alternate or lesser capacity vehicles and accommodates route deviations as required; operates throughout the day.

There are currently no bus shelters, benches, garbage receptacles or other bus stop improvements along these routes serving the project area.

Sidewalks and Pedestrian Access

Sidewalks within the Norwood area are inconsistent in width, connectivity, and location. Sidewalks and pedestrian ramps primarily exist along the newer and developed areas of the Norwood area, and abruptly end where the development stops (see Figure 1-7). Most sidewalks are adjacent to the street curb, without any landscaped area separating the sidewalk from the street. Sidewalks constructed within the past few years appear to comply with the ADA requirements requiring unobstructed clearance of at least five (5) feet. However, Figure 1-8 shows a more typical example of an existing sidewalk in the area. This is an example of an improper sidewalk width and obstructions in the sidewalk, a utility pole in this instance, which impedes pedestrian traffic. Also, few of the pedestrian ramps comply with recent curb ramp requirements to include truncated domes (see Figure 1-9), which are raised bumps about one inch in diameter placed closely together over a three foot by four foot area near the flowline of the gutter, to alert visually impaired and other pedestrians of a street crossing.

Sidewalks do not exist along most of the more heavily traveled roads in the Norwood area. On streets without sidewalks, the pedestrians are required to walk in the drainage ditches and swales, or along the edges of the narrow streets, placing the pedestrians closer to moving vehicles. Figure 1-10 shows a pedestrian walking in Morey Avenue toward the Morey Avenue Early Childhood Development Center, where no sidewalks lead to or are in front of the school. However, Morey Avenue is currently identified in the Sidewalks to School section of the *City of Sacramento's Transportation Programming Guide 2006* (TPG) as being a high priority for sidewalk improvements. The TPG, a comprehensive document that prioritizes the City of

Sacramento's transportation programs and projects, recommends sidewalks on Morey Avenue between Norwood Avenue and Western Avenue. This project is ranked 13th out of 74 projects.

The project area includes both rolled curb and barrier type curb with a vertical 6-inch face. Current City standards require a 6-foot parkway area between the street curb and the sidewalk to provide a safe zone for the pedestrian and improve aesthetics. Figure 1-11 shows an area along Morey Avenue that transitions from a rolled curb face with no parkway area, to a 6-inch vertical curb with a parkway area, to no curb or sidewalk.

Figure 1-7
Example of Terminated Sidewalk – South and Norwood Avenues



Figure 1-8
Typical Sidewalk Conditions – South Avenue Looking Toward Norwood Avenue

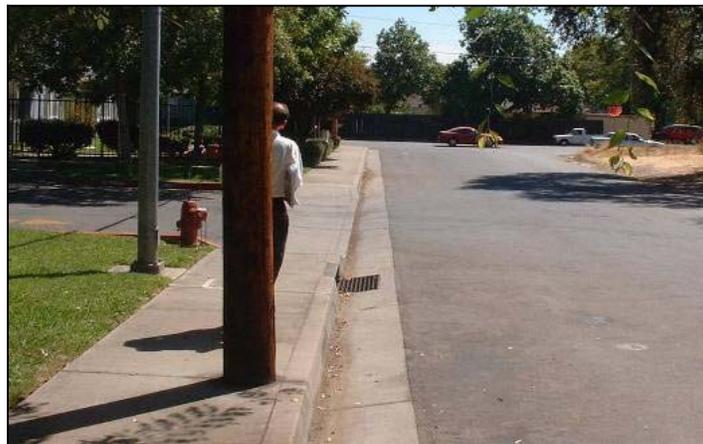


Figure 1-9
Curb Ramp with Truncated Domes – Morey Avenue at Norwood Avenue



Figure 1-10
Pedestrian Walking in Morey Avenue



Figure 1-11
Example of Curb and Sidewalk Transitions – Morey Avenue Looking West



Roadway Conditions

The following descriptions provide information on the existing conditions of each of the primary streets within the Norwood area.

Norwood Avenue

Norwood Avenue is a north-south arterial street providing the majority of the access to the project area. It is classified as a major collector street with five lanes: two lanes in each direction and a two-way left turn lane (see Figure 1-12). On March 17, 1998 the City measured a combined 14,808 vehicles traveling in both directions on Norwood Avenue at Silver Eagle Road. Existing traffic signals along Norwood Avenue are located at Harris Avenue (just north of the project boundary), Grand Avenue, Morey Avenue, and Silver Eagle Road (see Figure 1-5 above). Transit service on Norwood Avenue includes RT bus routes 14-Norwood, 16-Del Paso Heights/Norwood Avenue, and 86-San Juan/Silver Eagle. Unmarked Class II bike lanes are on both sides of Norwood Avenue from Grand Avenue southward, and Class II bike lanes are proposed to the north of Grand Avenue.

**Figure 1-12
Norwood Avenue - Looking North from South Avenue**



Morrison Avenue

Morrison Avenue is a two-lane, un-striped east-west local road providing access along the northern edge of the project area. An industrial complex that serves several freight hauling businesses lies to the north of Morrison Avenue. At the intersection of Morrison and Western Avenues is the access point to the City's storm sump pump 157. The north side of Morrison Avenue is mostly improved with curb, gutter, sidewalk, and street lights. The south side of the street typically has no curb, gutter, sidewalk, or lighting. Figure 1-13 shows the typical conditions along Morrison Avenue. This street is designated as an on-street bikeway in the Bikeway Master Plan.

**Figure 1-13
Morrison Avenue Looking East**



Morey Avenue and South Avenue

Morey Avenue and South Avenue are two-lane un-striped east-west local roads providing access within the project area. The majority of both streets lack curb, gutter, sidewalk, and adequate street lighting. The existing pavement is approximately 18 feet wide along each street. These conditions create a narrow environment that is dangerous for pedestrians, bicyclists, and motorists traveling along these roads. Typical existing conditions along these streets are shown in Figure 1-14 and Figure 1-15.

**Figure 1-14
South Avenue - Looking West from Norwood Avenue**



Figure 1-15
Morey Avenue - Looking East from Western Avenue



Silver Eagle Road

Silver Eagle Road is a two-lane east-west arterial street with a left turn lane provided at the signalized intersection with Norwood Avenue (see Figure 1-16). Silver Eagle Road is classified as a minor collector street and is the only street in the study area that provides access to the communities west of the Norwood area, across the NEMDC. On August 3, 2005 the City measured a combined 10,595 vehicles traveling in both directions on Silver Eagle Road at the intersection with Mabel Street. Transit service on Silver Eagle Road includes RT bus route 86-San Juan/Silver Eagle.

The portion of Silver Eagle Road between Norwood Avenue and Mabel Street is identified for widening in the 2006 TPG. The project is ranked 9th out of 40 major street projects. The 3-way stop sign and flashing red light, at the intersection of Mabel Avenue and Silver Eagle Road, is identified to be replaced with a traffic signal project in the 2006 TPG. The project ranks 38th out of 72 projects.

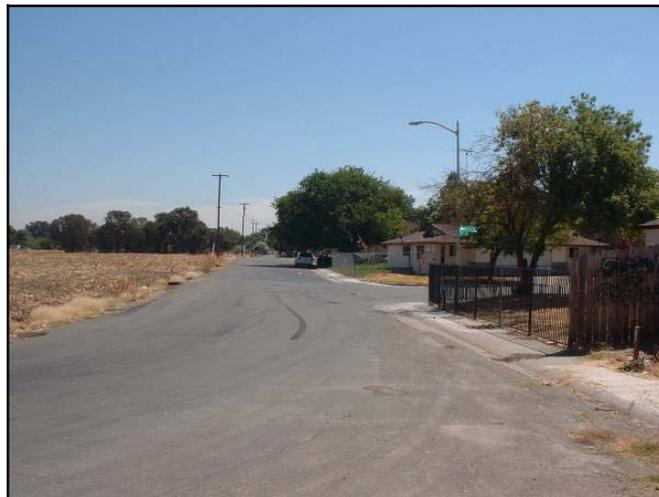
Figure 1-16
Silver Eagle Road at Norwood Avenue – Looking West



Ford Road

Ford Road, classified as a residential street, is a two-lane, un-striped east-west local road along the southern border of the project area. Portions of the street through the project area lack curb, gutter, sidewalk, and lighting, as illustrated in Figure 1-17. The 2006 TPG calls for a signalized intersection at Ford Road and Norwood Avenue. The project is ranked 13th out of 72 projects. Transit service on Ford Road includes RT Bus Route 14-Norwood

Figure 1-17
Ford Road – Looking East from Western Avenue



Western Avenue

Western Avenue borders the west side of the project area, with connection points at Morrison Avenue, Morey Avenue, South Avenue, and Ford Road. There is no connection to Silver Eagle Road. Conditions on Western Avenue are similar to those of Morey Avenue and South Avenue. The street lacks curb, gutter, sidewalks, and adequate lighting. The City-owned portion of the land west of the road is a narrow strip that abuts the Western Pacific Railroad Company right-of-way. The majority of the private land east of Western Avenue is still relatively undeveloped, however several projects are planned for the area. Existing conditions are illustrated in Figure 1-18 below. The bridge for Silver Eagle Road that crosses over Western Avenue can be seen in the distance.

Figure 1-18
Western Avenue - Looking South from Morey Avenue



1.3.3 Utilities

The utilities investigated in this study include:

- Potable Water
- Sanitary Sewer
- Storm Drainage
- Electrical Service, including street lighting
- Telecommunications
- Cable Service
- Natural Gas Service

Not every parcel has access to or uses every utility service available in the Norwood area. While the existing utilities are adequate to meet current demands, improvements and upgrades will be necessary to meet future demands. Below is a summary of the existing conditions for each utility, followed by a summary table.

Potable Water

The existing potable water system is operated and maintained by the City of Sacramento and currently serves less than ½ of the Norwood area, primarily the subdivisions located in the northern and southern perimeters. Figure 1-19 shows the locations of existing water lines. The remaining parcels are served by local well water.

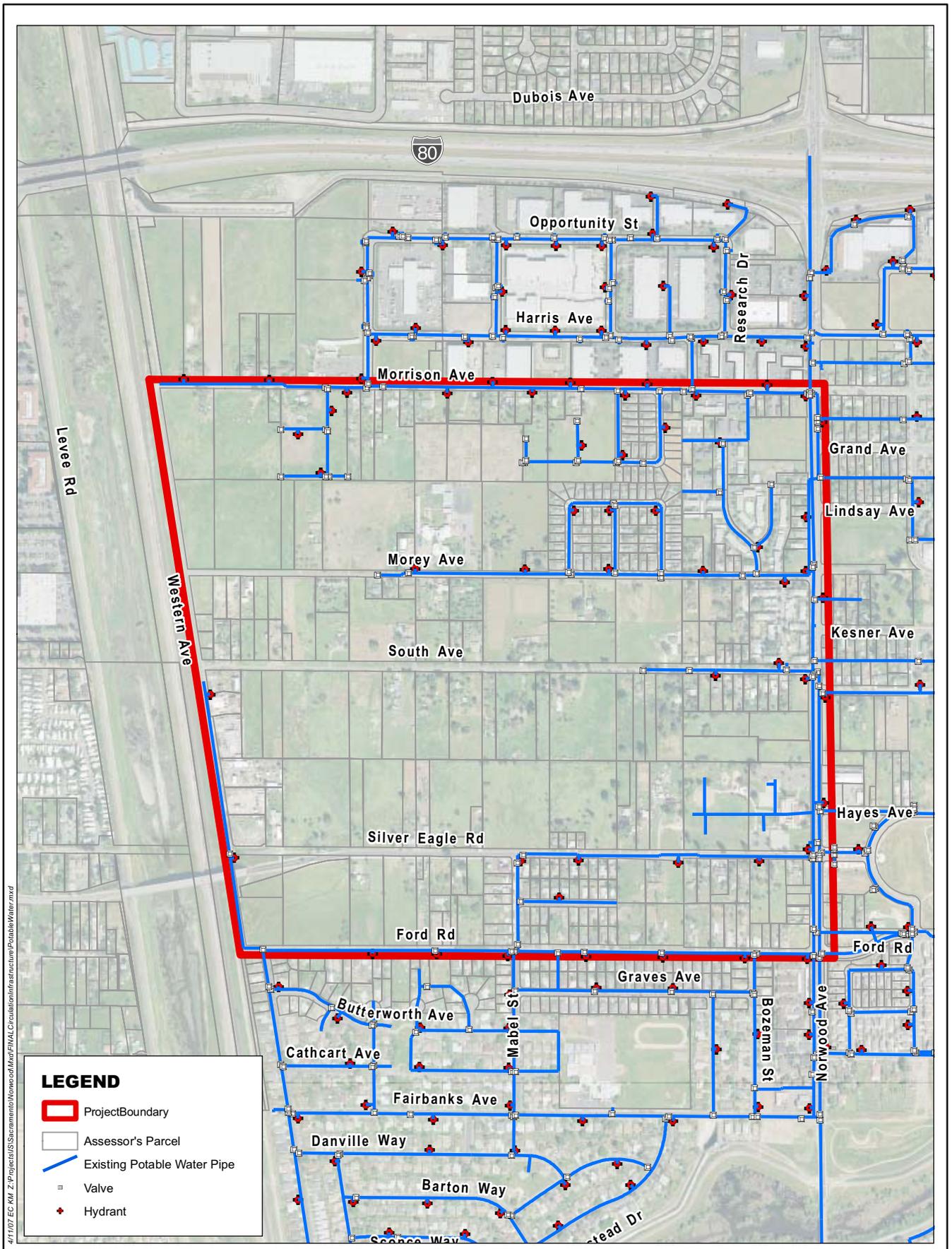
City records indicate that the existing water system is reliable and in good to fair condition. The existing water system, which include 6-inch to 12-inch polyvinyl chloride (PVC) pipelines, appear to be adequate in size and pressure to accommodate extending new pipelines to serve the project area. However, since many of the parcels cannot access the existing water service pipelines, fire service coverage is inadequate. Additionally, the existing system provides little reliability since there is only one source of water supply and one transmission main currently serving the project area. Without redundancy, the residents served by the City water system may be without water service for an indefinite amount of time during a water main failure.

Sanitary Sewer

The Norwood area is located within the northern portion of Sewer Basin 85. The sewage flows southward by gravity to Sump Number 85, which is located south of Arcade Creek. The City of Sacramento maintains and operates the sewer collection system in this area. Many of the parcels, but not all parcels, are connected to the City's sewer system. The buildings not connected to the City's sewer system use a septic system. Some of the sewer lines are shallow and all are near minimum slope (0.5% to 1.0%) due to the flat grades in the area. Therefore, small sewer lift stations may be required to convey sewer flows from new and future developments. Figure 1-20 shows the existing sewer system for the Norwood area. A 24-inch force main, owned and operated by the County of Sacramento, exists in Silver Eagle Road.

The Condition of the system is unknown. Possible deficiencies include deterioration of the pipeline material. An inspection and assessment program should be developed to determine whether repair, rehabilitation or replacement of certain pipe segments and manholes is necessary. On average, the inspection and assessment of one (1) mile of sewer pipe, including traffic control permitting and reporting, costs approximately \$18,000. To inspect and assess the approximately 25,000 feet (4.71 miles) of sewer pipelines in the Norwood area would cost approximately \$85,000.

The City has retained West Yost and Associates to evaluate the sewer system and prepare a sewer study to determine the adequacy and capacity of Basin 85. This study, anticipated to be completed in November 2007, will include recommendations for sewer improvements to accommodate the growth expected in the Norwood area.



Map Sources: City of Sacramento, 2005 (Aerial, Water Data);
Boundary Solutions, 2006 (Parcels)

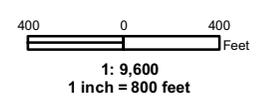
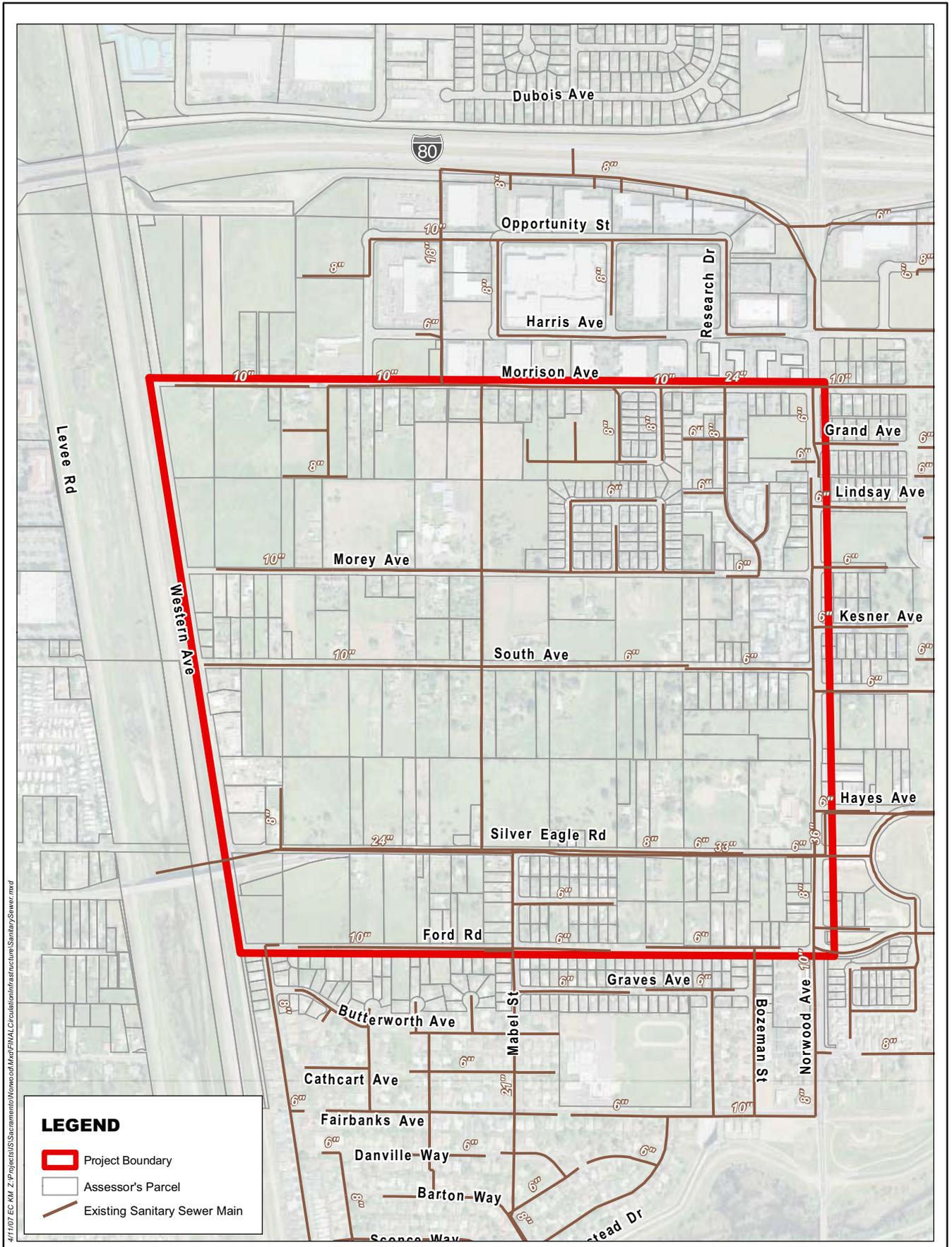


Figure 1-19
Existing Potable Water



4/11/07 EC KM ZIP/Projects/Sacramento/Nonroad/Map/FINAL/Circulation/Infrastructure/SanitarySewer.mxd

Map Sources: City of Sacramento, 2005 (Aerial, Sewer Data);
Boundary Solutions, 2006 (Parcels)

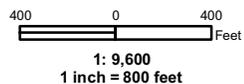
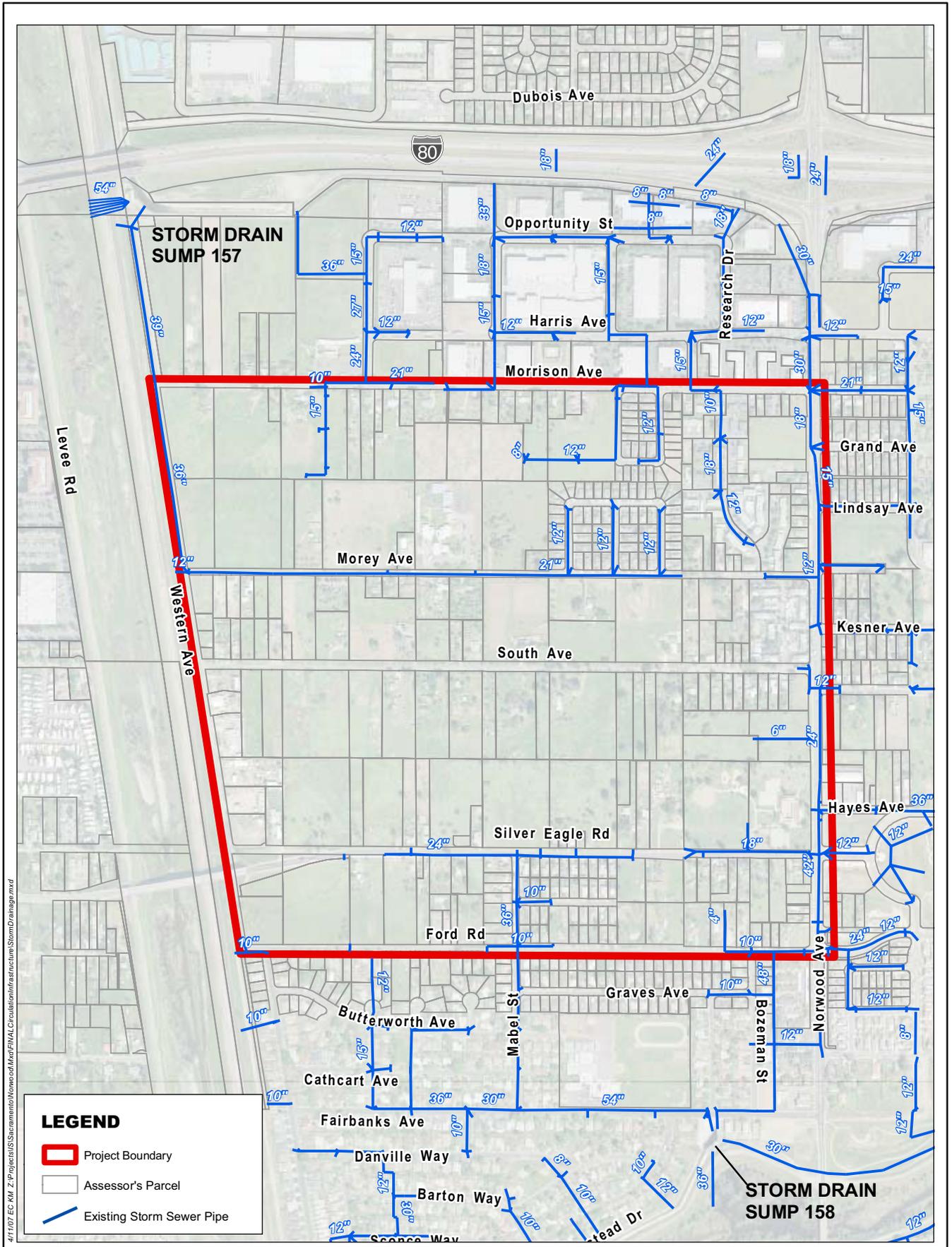


Figure 1-20
Existing Sanitary Sewer

Storm Drainage

Two drainage basins serve the Norwood area. The storm water collected at Sump 157, located at the north end of Western Avenue just south of Interstate 80, discharges into NEMDC. The storm water collected at Sump 158, located on Fairbanks Avenue, discharges into Arcade Creek. The City of Sacramento operates and maintains the storm drain piping and pumping stations. Figure 1-21 shows the existing storm drainage system serving the area.



4/11/07 EC KM ZIP projects/Sacramento/Worked/Map/FINAL/Circulation/Infrastructure/Storm/Drainage.mxd

Map Sources: City of Sacramento, 2005 (Aerial, Sewer Data);
Boundary Solutions, 2006 (Parcels)

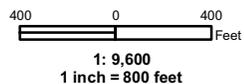


Figure 1-21
Existing Storm
Drainage System

Area residents indicated significant amounts of localized flooding occurs in the Norwood area, even during small storms. Figures 1-22 and 1-23 show examples of standing water generated by a small storm that passed through Sacramento on December 8, 2006.

**Figure 1-22
Example of Local Area Flooding**



**Figure 1-23
Example of Storm Water Ponding**



In the older and less developed areas of Norwood, the drainage system primarily consists of surface drainage, roadside ditches, and corrugated metal culverts under driveways. These systems appear to be poorly maintained, often clogged with debris and vegetation. The culverts

contain silt and are bent and damaged at the entrance and exit points, which limits the amount of storm flow conveyed through the pipes and ditches. Figures 1-24 and 1-25 show examples of existing storm water infrastructure in these areas.

**Figure 1-24
Typical Damaged Culvert**



**Figure 1-25
Typical Storm Water Inlet**



Curb and gutter, catch basins, and storm pipes have been installed in the newer subdivisions to convey the storm flows to the storm sumps. In accordance with current design procedures, the curbs, gutters, and storm drains must adequately contain and convey the 10-year storm flows,

and properties must be elevated to avoid the 100-year storm flows. Preliminary results from a storm drainage master plan for Basin 157, prepared by consultant West Yost and Associates, confirm City staff's observation that the storm drainage system is at capacity.

Residents of the Norwood area expressed concern about the condition of the eastern levee of the NEMDC, located west of and parallel to Western Avenue. According to the American River Flood Control District (ARFCD) who maintains the NEMDC levee, there is an aggressive year round maintenance program that includes weekly visual inspections for surface problems, bi-weekly mowing of the grasses during the spring and summer, regular trimming and removal of trees and brush, filling of rodent holes and restoration of the gravel road when needed. According to ARFCD, the east levee of NEMDC is in good condition. It was last strengthened and raised during a project that concluded in 1998. The Department of Water Resources (DWR) maintains the NEMDC channel. Recent reports indicate the channel is properly maintained and minimal amounts of debris are found and subsequently removed from the channel.

Electrical Service / Street Lights

The Sacramento Municipal Utility District (SMUD) provides the electrical service to the Norwood area. Generally the utility service is provided via overhead service lines. The utilities are underground for many of the newer developments. According to SMUD, the utilities will remain overhead unless improvements, such as road widening efforts, along the overhead corridors include provisions to underground the electrical utilities. However, the cost of undergrounding the overhead utilities often requires an assessment district, which requires the owners of parcels who benefit from the undergrounding to pay for the improvements over time. Grant funding may also be available to pay for portions of the work.

All future developments will be required to install underground service and to install proper street lighting. SMUD and the other dry utilities described below, require a 12.5-foot wide clear space adjacent to the right-of-way or easement areas to install the electrical and other dry utilities. SMUD indicated that electrical service is adequate and that it will install additional service lines as needed to meet the needs and demands of its customers.

Street lighting provides safety, comfort, and security for pedestrians, bicyclists, and motorists during non-daylight hours. Except for the new developments, street lighting is random and often non-existent. The citizens have requested additional street lighting to improve safety and possibly reduce crime and littering. Typically, new developments are conditioned to install street lighting prior to their final approval. New developments are required to install underground service for all proposed street lighting.

Telecommunications / Cable

AT&T California provides the local and long distance telephone service, 911 service and other data communication services for the Norwood area.

Comcast provides cable television and related services for the Norwood area.

Natural Gas

Pacific Gas and Electric Company (PG&E) provides the natural gas service to the Norwood area. Service is currently adequate and no demands for additional service are anticipated at this time.

Summary of Utilities

Table 1-3 summarizes the conditions of the utilities evaluated in this study.

**Table 1-3
Condition of Utilities**

Utility	Purveyor	Existing Conditions
Potable Water	City	- no service redundancy - well water usage high
Sanitary Sewer	City	- apparent adequate service for existing development - capacity deficiencies for build out conditions - flat and shallow lines may limit adding flows for future development
Storm Drainage	City	- swales & under drains are poorly maintained - system at capacity - east levee of NEMDC is adequately maintained
Electrical / Street Lights	SMUD	- overhead lines predominant in older sections - newer developments have underground utilities - insufficient street lighting - 12.5' clearance from water, sewer, and natural gas is required - adequate service in area
Tele-communications	AT&T	- adequate service in area - 12.5' clearance from water, sewer, and natural gas is required
Cable	Comcast	- adequate service in area - 12.5' clearance from water, sewer, and natural gas is required
Natural Gas	PG&E	- adequate service in area - 12.5' clearance from water, sewer, and other utilities is required

1.4 Community Involvement

As part of this project, the City held community meetings to present the information developed over the course of the project and, more specifically, to gather comments and input from the residents and property owners. Three meetings were held at the Robertson Community Center, located at 3525 Norwood Avenue (zip code 95838). Table 1-4 shows the meeting dates and the purpose of each meeting.

**Table 1-4
Community Meetings and Purpose**

Meeting Date	Meeting Purpose
October 14, 2006	Introduce project and gather community needs and desires
December 9, 2006	Gather comments regarding preliminary recommendations
February 3, 2007	Present final recommendations and gather input for final report

To encourage participation, the meetings were held on Saturdays, between 11 a.m. and 1 p.m. The City provided lunch for all attendees as well as activities for the children of attendees. The City mailed a meeting notice and invitation two to three weeks prior to each meeting. A one page announcement of each meeting was also sent home with students attending the three local elementary schools: Del Paso School, Fairbanks Elementary and Morey Avenue Early Childhood Development Center.

Thirty-four residents signed in and attended the first meeting, sixteen attended the second meeting and sixteen attended the final meeting. All of their comments were written down and transcribed into meeting minutes. Participants and recipients of the mailers also had the opportunity to complete comment cards and return them by mail to the City's project manager. Several recipients submitted comment cards over the course of the project. These comments were compiled and are also included in the summary for each meeting.

Concerns expressed at the meeting centered on the issue of safety, as related to the condition of the existing transportation system. A lack of adequate infrastructure (curb, gutter, sidewalks, lighting) combined with excessive speeding in the area were the most frequent causes for concern. A summary of other major issues identified by the residents include:

- Morey Avenue, South Avenue, and Western Avenue are in need of wider and well-paved streets
- Sidewalks are needed throughout the Norwood area; priority should be on Morey Avenue for access to the Morey Avenue Early Childhood Development Center
- Street lighting is needed throughout the Norwood area for pedestrians, bicyclists, and motorists
- Traffic calming devices are needed to address excessive speeding throughout the Norwood area
- Signalized intersections should be considered at Silver Eagle Road and Mabel Street, as well as at Norwood Avenue and Morrison Avenue
- Trash, appliances, and furniture is routinely abandoned on Western Avenue
- Bikeway improvements needed
- Truck traffic should be limited on Morrison Avenue

Responses and comments collected also indicate that a majority of local residents prefer the rural character of the neighborhood. Most desire that the area retain its open land feel and avoid the densities permitted by current zoning laws. Changes to zoning requirements must be handled through updates to the General Plan. Updates to the General Plan are currently

underway. The residents and parcel owners have been strongly encouraged to participate in these discussions and provide input to City staff. Changes that reduce the zoning densities will reduce the demand on the existing utility infrastructure improvements.

Appendix A contains a copy of the mailer, the notice sent to the elementary schools, an agenda, and a summary of major items for each of the three meetings.

Chapter 2

Circulation and Roadway Assessment

Localized developments, such as what is occurring within the Norwood area, will generate an increase in vehicular travel that may cause traffic congestion within the project area if necessary improvements are not properly addressed. As the neighborhood experiences significant changes, it requires attention to potential transportation infrastructure needs. This chapter provides an overview of the elements considered for effective and efficient circulation planning, an assessment of the future circulation demands, and recommendations for infrastructure improvements to accommodate future needs.

2.1 Circulation Related Elements

Providing the necessary infrastructure to allow for various forms of travel including vehicular, public transit, bicycle, and pedestrian travel will offer residents access to amenities that become available as the project area continues to be developed. Conducting a circulation assessment for the project area serves to identify infrastructure improvements necessary to provide safe and efficient vehicular, bicycle, and pedestrian circulation options for the Norwood area. The following is a review of the circulation elements assessed within the study area that allow for alternate modes of transportation. Each element was evaluated as it pertains to each of the following primary streets within the project area: Morrison Avenue, Morey Avenue, South Avenue, Silver Eagle Road, Ford Road, Norwood Avenue, and Western Avenue.

2.1.1 Estimated Daily Trips

To determine the most appropriate street classifications to accommodate anticipated traffic, traffic volume within the study area was estimated based on complete build-out of the project area using the current zoning codes and existing developed conditions. Daily traffic trips were determined by estimating the total trips associated with each DU at the time of build out. The daily traffic trips were then distributed to the roadway network within the study area. Factors used for estimating the daily trips are based on City of Sacramento's traffic design standards.

The City's traffic design standards specify an average of 10 daily trips per DU for all residential types of zoning. Daily trips for Light Industrial (M-1) and Mixed Use areas are calculated based on the estimated building floor space. The City of Sacramento's Municipal Codes establish that lots in these zones cannot have buildings whose square footage exceeds 35% of the lot. City standards specify that lots zoned for M-1 will have 9.0 daily trips / 2,000 SF of building space and lots zoned for Mixed Use will have 10 daily trips / 1,000 SF of building space. Table 2-1 shows the estimated maximum daily trips likely to be generated per zone type and the total estimated trips for the Norwood area at build-out.

**Table 2-1
Daily Trips per Zone Type**

Zoning	Approximate Acres	Average Allowable DU/Acre	Total DU	Estimated Daily Trips
R-1	168.9	8	1,351	13,500
R-1A	47.3	12	568	5,700
R-2A	3.0	17	51	510
R-2B	6.5	21	137	1,370
R-3	14.3	29	415	4,150
M-1	7.5	-	9/2,000 S.F.*	520
Mixed Use	0.9	-	10/1,000 S.F.*	140
	248.4		Total	25,890

* Applicable to the allowable building square footage (SF) which is 35% of total lot SF

2.1.2 Street Classifications and Cross Sections

The ultimate street network within the project area should serve to provide local circulation, accommodate low speeds, and minimize localized traffic volumes on the neighborhood streets. Additionally, pedestrian safety and comfort should be enhanced and non-motorized travel modes improved and encouraged. Street classifications selected incorporate the necessary features to accommodate the alternate modes of travel as well as the anticipated Average Daily Trip (ADT) counts along each street. A minimum right-of-way width is necessary for each type of classification. To determine the street classifications and the minimum right-of-way widths required for the primary streets within the project boundary, ADT counts and peak hourly vehicle trips were estimated for the streets providing east and west access. The estimated ADT counts were distributed to the nearest east-west streets adjacent to the parcels. Additionally, the City design standards require a 6-foot wide parkway and a 5-foot wide sidewalk on each side of a local residential and collector streets.

Table 2-2 is a summary of the estimated ADT counts and peak hourly vehicle trips for each street at build-out. Table 2-2 also shows the street classifications, as required per City standards, based on estimated ADTs. Based on the City street guidelines, a residential classification can serve an ADT up to 4,000 or an area with less than 400 DUs. Minor collectors serve between 4,000 and 7,000 ADT or up to 700 DUs. Major collectors provide service for corridors that serve between 7,000 and 14,000 ADT.

**Table 2-2
Estimated Average Daily Traffic and Street Classification**

Street Name	Estimated Daily Trips* (Ultimate)	Estimated Peak Hourly Vehicle Trips*	Street Classification Based on Estimated Daily Trips	Recommended Street Classification
Norwood Avenue	4,600	460	Major Collector	Major Collector
Morrison Avenue	4,200	420	Minor Collector	Local Residential
Morey Avenue	6,700	670	Minor Collector	Local Residential
South Avenue	5,200	520	Minor Collector	Local Residential
Silver Eagle Road	5,200	520	Minor Collector	Minor Collector
Ford Road	1,900	190	Residential	Local Residential
Western Avenue**	4,500	450	Minor Collector	Local Residential-Modified

* Does not reflect ADTs contributed from outside of project boundary

** Calculated as an average from all streets connecting to Western Avenue

The peak hourly vehicle trips are calculated as 10% of the total calculated ADT. It is assumed that this is the maximum traffic flow that will occur during the busiest hour of the day. The ADT count and peak hourly vehicle trips determine the number of travel lanes required in each direction. According to the General Plan TBR, the threshold capacity for a two-lane urban arterial road is 1,500 vehicles per hour in each direction. According to the estimated peak hourly vehicle trips, one lane in each direction is adequate for all of the streets in the Norwood area with the exception of Norwood Avenue.

Due to its geographical location, the project area is not included as part of the City's overall grid system and draws primarily only local traffic. Also, the street connectivity being conditioned with the approval of tentative maps for developments within the project area will relieve the primary streets of some of the estimated daily traffic flow. The decrease in daily traffic flow along the primary streets allows the City to adjust the street classification to accommodate improvements for estimated daily traffic trips that are near or slightly higher than the allowable limit. Table 2-2 shows the street classifications based on the estimated daily trips and the recommended classification based on expected conditions and available right-of-way for each of the primary streets.

2.1.3 Traffic Calming Devices

Residents have expressed a concern regarding excessive speeding throughout the Norwood area. As the number of motorists increase, maintaining safe speed limits will be imperative. Traffic calming devices are used to reduce the speed of vehicles, reduce traffic volumes, and

increase safety of vehicles, pedestrians, and bicyclists. The types of traffic calming devices to use, the locations to place the devices and the frequency with which to use them must be studied and carefully planned. The City has very strict guidelines and requirements when planning and installing traffic calming devices. Some traffic calming devices, particularly those that create physical barriers, can impede emergency response vehicles, add noise to the environment, prevent larger vehicles from executing turns, and may require additional right-of-way to construct. Below is a discussion of various traffic calming devices that may be considered for the project area.

Speed Humps and Speed Lumps

Speed humps, or undulations, are raised areas placed across roads. They are generally 12 feet long (in the direction of travel), 3 ¼ to 3 ¾ inches high, and parabolic in shape, producing a design speed of 15 to 20 mph. They usually have a taper on each end to allow unimpeded drainage between the hump and the curb. When placed on a street with rolled curbs or no curbs, bollards are placed at the ends of the speed hump to discourage vehicles from veering outside of the travel lane to avoid the device. Speed humps are intended to calm traffic in residential areas, near parks, and around schools. The city of Sacramento began constructing speed humps in 1980 in response to neighborhood speeding problems. Speed humps can create a “rough ride” for all drivers, slow emergency vehicles and increase noise and air pollution from the vehicles braking and accelerating to pass speed humps. Figure 2-1 illustrates an example of a speed hump design that may be implemented where warranted as each road is designed and improved.

**Figure 2-1
Example of Speed Hump**



The speed lump is a variation of a speed hump in that two wheel cut-outs are built into the hump to allow large vehicles, such as buses and emergency vehicles, to pass without slowing. The spacing of the cut-outs is designed such that all wheels of a larger vehicle will pass through both cut-outs, but at least one set of wheels of a standard size vehicle will be affected by the hump.

Speed humps must be spaced a minimum of 750 feet, when in residential areas, and 500 feet, when adjacent to parks and schools, between traffic controls, four-way intersections, and curves

with less than 250 foot radius. The posted speed limit must be 30 mph or less. If the street is part of the Regional Transit (RT) bus network, or identified as an emergency response route by the Fire Department, only speed lumps will be considered. A speed survey shall indicate that the 85th percentile speed is at five or more miles per hour over the speed limit. Residents in areas being considered for speed humps will vote on the installation of the speed hump. A minimum of 25% of the ballots mailed must be returned and a two-thirds majority of the votes must be in favor of the installation.

Stop Signs

Stop signs are posted to reduce collisions. At intersections, stop signs show which motorist has the right-of-way and ensure that traffic flows smoothly and predictably. Stop signs may also be used to evenly distribute vehicles entering an intersection. Stop signs are not intended to control the speed of vehicles, and often are ignored by drivers if placed in locations, such as mid block, where no vehicle interference is perceived. Traffic engineers perform studies to determine the locations of stop signs to accommodate the levels of traffic and needs of an area.

Crosswalks

A crosswalk concentrates pedestrians at a single location of a roadway where they have the right-of-way. Crosswalks may be "marked" or "unmarked." Most people are familiar with marked crosswalks that have white or yellow stripes painted on the pavement of an intersection. However, a crosswalk does not have to be marked for a pedestrian to have the right-of-way. High-visibility crosswalks use special marking patterns and raised reflectors to increase the visibility of a crosswalk at night. A drawback of crosswalks is that they may give pedestrians a false sense of security, causing them to pay less attention to traffic. Figure 2.2 illustrates an example of a High Visibility Crosswalk.

**Figure 2-2
Example of High Visibility Crosswalk**



Traffic Signals

The familiar red, yellow, and green lights, as well as the specialized pedestrian lights, are designed to let people know who has the right-of-way at an intersection or crossing. Traffic signals help manage traffic flow, allow pedestrians to cross and give cross-street traffic a

chance to enter the intersection. Pedestrian signals allow pedestrians to cross at an intersection safely.

Speed Limits and Enforcement

Safety and common sense should determine an individual's driving speed, even if it means driving more slowly than the posted speed limit. Traffic engineers study streets and intersections to set safe speed limits that reflect the speeds of prudent motorists. Posting speed limits must be reasonable because if they are set too low, drivers are more likely to exceed them. To be effective, speed limits must be enforced by the local Police Department. To be eligible for radar enforcement, the speed limit signs must be set using an appropriate engineering and speed study. Though drivers typically respond to the speed for which the street was designed, lower traffic speeds, particularly those associated with residential streets should be posted and enforced.

Speed Legends

Speed legends are numerals painted on the roadway indicating the allowable speed limit in miles per hour. They are usually placed near speed limit signposts. Speed legends can be useful in reinforcing a reduction in speed limit between one segment of a roadway and another segment. They may also be placed at major entry points into a residential area. While speed legends have not been shown to significantly reduce travel speeds, they do help alert drivers and reinforce a change in speed limit. Figure 2-3 illustrates an example of a speed legend adjacent to the posted speed limit sign.

**Figure 2-3
Example of Speed Legend**



Botts Dots and Raised Reflectors

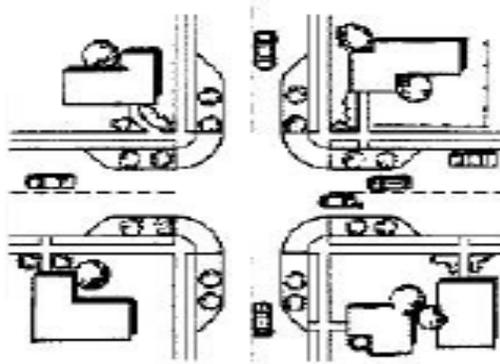
Botts dots and raised reflectors, or raised pavement markers, are small bumps lining the centerline or edge line of a roadway. They are often used where vehicles have a tendency to deviate outside of the proper lane, risking collision. Raised reflectors improve the nighttime visibility of the lane widths and roadway edges. Botts dots can be arranged into a rectangular array across the roadway, creating a *rumble strip*, which causes a rumbling sensation to drivers

as they cross. These can reduce travel speeds but also increase roadway noise considerably. Consequently, rumble strips are only placed in low density areas and are not good candidates for the Norwood area.

Neckdown / Bulbout

Neckdowns and bulbouts are curb extensions at intersections that reduce roadway width curb to curb. Bulbouts are simple raised curbs at an intersection that narrow the travel lane but do not provide additional pedestrian space. Neckdowns actually improve intersections for pedestrians by shortening crossing distances for pedestrians and drawing attention to pedestrians via raised peninsulas. Both measures tighten curb radii at the corner reducing the speeds of turning vehicles. Both of these effects increase pedestrian comfort and safety at the intersection but may require bicyclists to briefly merge with vehicular traffic. Figure 2-4 illustrates an example of a bulb-out that may be used where sufficient right-of-way is available.

**Figure 2-4
Example of Neckdown / Bulbout**



Two-Lane Choker

Chokers are curb extensions at mid-block that narrow a street by widening the sidewalk or planting strip. One travel lane is provided in each direction. If marked as crosswalks, they are also called safe crosses. The choker causes drivers to slow down to navigate through the narrower roadway. Chokers may require bicyclists to briefly merge with traffic and reduce on-street parking.

Figure 2-5
Example of Two-Lane Choker



2.1.4 Sidewalks

Sidewalks and pedestrian ramps compliant with the ADA requirements are needed throughout the project area. Sidewalks and pedestrian ramps will increase pedestrian safety and enhance pedestrian access. Sidewalk improvements vary throughout the project area. Recently approved tentative maps include improvements that incorporate a 5-foot sidewalk along all in-tract and primary streets within the project area. Although City standards require a 6-foot parkway between the back of a 6-inch vertical barrier type curb and the sidewalk, nearly all of the existing and recently constructed sidewalks in the project area are constructed adjacent to the curb. A parkway is being required along the majority of the primary streets where it can be accommodated as well as along in-tract streets that will serve to provide north-south connectivity within the project area. Where sidewalk improvements exist, the City is attempting to incorporate improvements that can be accommodated within the available right-of-way and assimilated into the existing improvements.

2.1.5 Bikeways

Bikeways are provided for recreational and commuter bicyclists. They promote bicycling as a recreational activity and an alternative form of transportation. Unstriped Class II bike lanes exist along Norwood Avenue. There are plans to extend the bike lanes along Norwood Avenue to include the entire eastern boundary of the project area. The General Plan proposes on-street bikeways along Morrison Avenue, Silver Eagle Road, and Western Avenue. See Figure 1-6. As development continues, opportunities to provide additional bikeways may be presented. Where specific Class II bike lanes are designated, appropriate lane widths, and signing and striping to improve bicycle safety should be provided.

2.1.6 Regional Transit

The Sacramento Regional Transportation District (RT) currently operates three transit routes in this area, which are described in more detail in Chapter 1. The development of the project area

may impact the existing transit routes by increasing potential ridership. This may require that RT evaluate the existing routes to determine if additional routes and facilities will be required to serve the additional potential ridership from the developments within the project area. To establish passenger service levels and transit service frequency, RT will need to evaluate the project area demographics and major trip generators (such as schools, hospitals, regional shopping centers, and major employers) internal to and within the vicinity of the project area. Potential routes identified will be classified according to RT route classifications to establish ridership service standards and minimum ridership level per hour and determine whether operating the routes will be cost effective.

The City should request RT to evaluate the condition of the existing facilities at transit stops serving the Norwood area and incorporate a passenger shelter at each existing bus stop location, if deemed necessary. Additional facility improvements at each location may also include benches, trash receptacles, and newspaper racks. The design, maintenance, liability, and ownership of the shelters and other applicable provisions will have to be established in an agreement between the City and RT.

2.2 Circulation Recommendations within the Project Area

The Norwood area is relatively isolated by geographic features that limit circulation to primarily local traffic. Silver Eagle Road provides the only east-west access to communities beyond the NEMDC located along the western boundary of the project area. Norwood Avenue provides the primary access to the street network within the project area. A small residential neighborhood to the south impacts portions of the Norwood area circulation as does an industrial trucking complex to the north. Several streets provide east-west access through the project area. However north-south connectivity is limited to the streets on the project's east and west boundaries which include Western Avenue and Norwood Avenue.

Current and planned development is determining the emerging circulation patterns within the project area. Figure 2-6 shows the approved and pending tentative maps for the project area. These tentative maps reveal opportunities for increased internal circulation. As shown on Figure 2-7, potential north-south and east-west opportunities for residential street connections exist but the connectivity is dependent upon the design and construction of adjacent developments occurring in a timely fashion.

Based on review of the approved and pending tentative maps, it appears that the City is encouraging the development of north-south circulation opportunities. North-south connectivity between Morrison Avenue and Silver Eagle Road would provide access to the undeveloped and newly approved parcels centrally located within the Norwood area. Additionally, north-south connectivity would facilitate access to the Morey Avenue Early Childhood Development Center and the Robertson Community Center. At intersections near the Morey Avenue Early Childhood Development Center, sufficient traffic calming devices should be implemented to enhance safety of the students, parents, and educators traveling to and from the school site.

Access to Silver Eagle Road is limited, and non-existent with respect to Western Avenue. Since Silver eagle Road is elevated over Western Avenue, it is not feasible to directly connect these roads. Therefore, possible routes for vehicles must be identified.

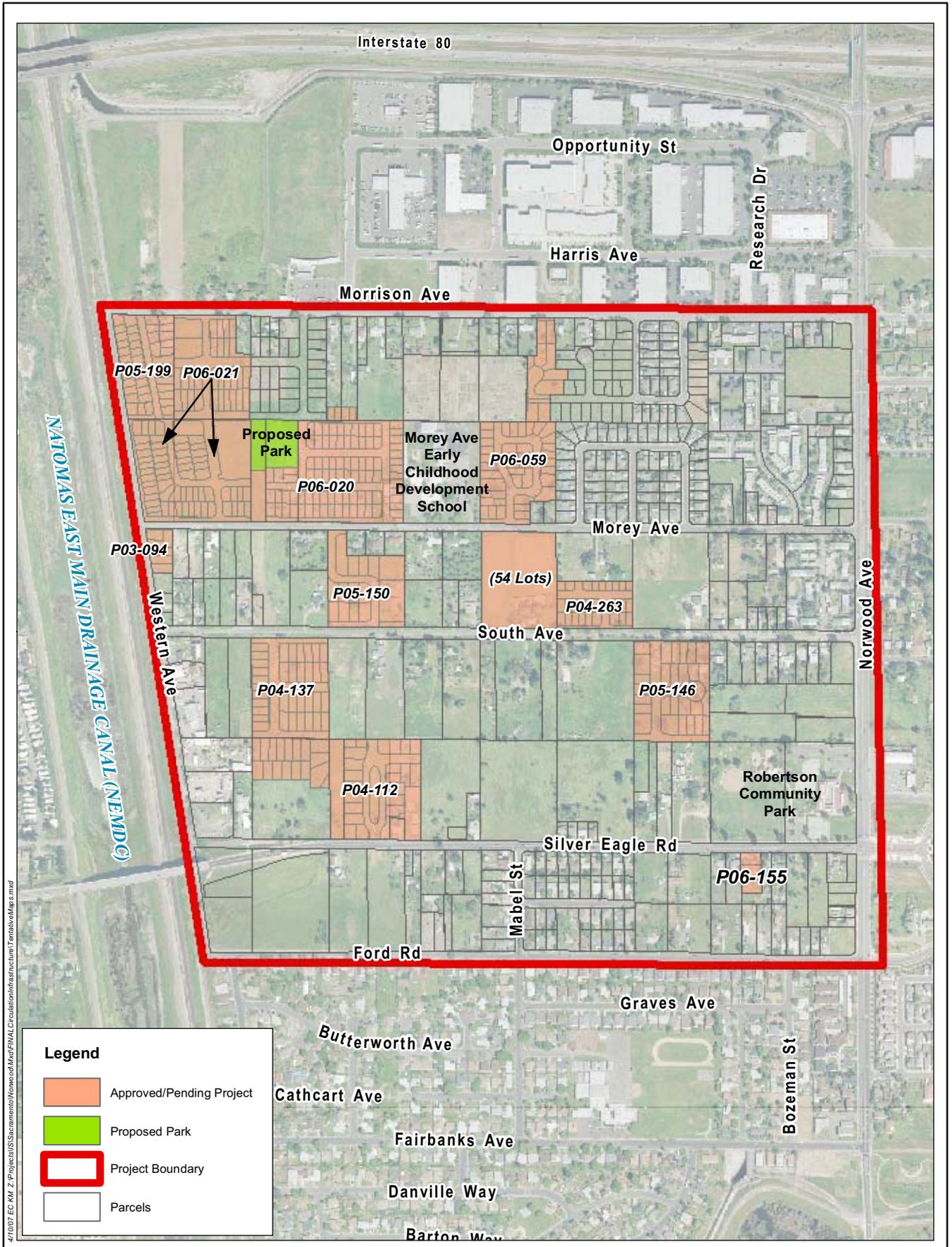
As tentative maps for developments near Silver Eagle Road and Western Avenue are conditioned, City staff should work to identify opportunities to provide direct connectivity between Western Avenue and Silver Eagle Road while minimizing the traffic volume along residential streets. Also, if sufficient north-south connectivity is established within the Norwood area, opportunities for additional access from Western Avenue to Silver Eagle Road will be provided, reducing traffic volumes on the east-west bound streets in the area. An additional option the City may consider is acquiring right-of-way to expedite implementing the connectivity. Each of these options would relieve the residential areas of industrial and excessive traffic volumes attempting to access Silver Eagle Road from Western Avenue.

2.3 Recommended Improvements for Primary Roadway

For the purpose of this assessment, the following roads are considered primary roads since they provide the primary east-west and north-south access in the Norwood area:

- Norwood Avenue
- Morrison Avenue
- Morey Avenue
- South Avenue
- Silver Eagle Road
- Ford Road
- Western Avenue

These primary streets were evaluated for each of the circulation elements presented in Section 2.1. Based on current approved and pending tentative maps for the project area, the City has established general street cross sections and right-of-way requirements. For instance, where the City determines there is east-west connectivity, such as on Morey and South Avenues, developers are required to use the City's 53-foot right-of-way that accommodates a residential



4/10/07 EC KM ZIP/projects/Sacramento/Nonwood/Main/INAL/Circulation/Infrastructure/Tentative Maps.mxd

Legend

- Approved/Pending Project
- Proposed Park
- Project Boundary
- Parcels

Map Sources: City of Sacramento, 2005 (Aerial); Boundary Solutions, 2006 (Parcels)

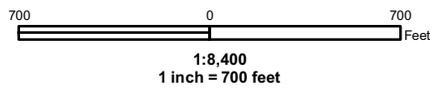
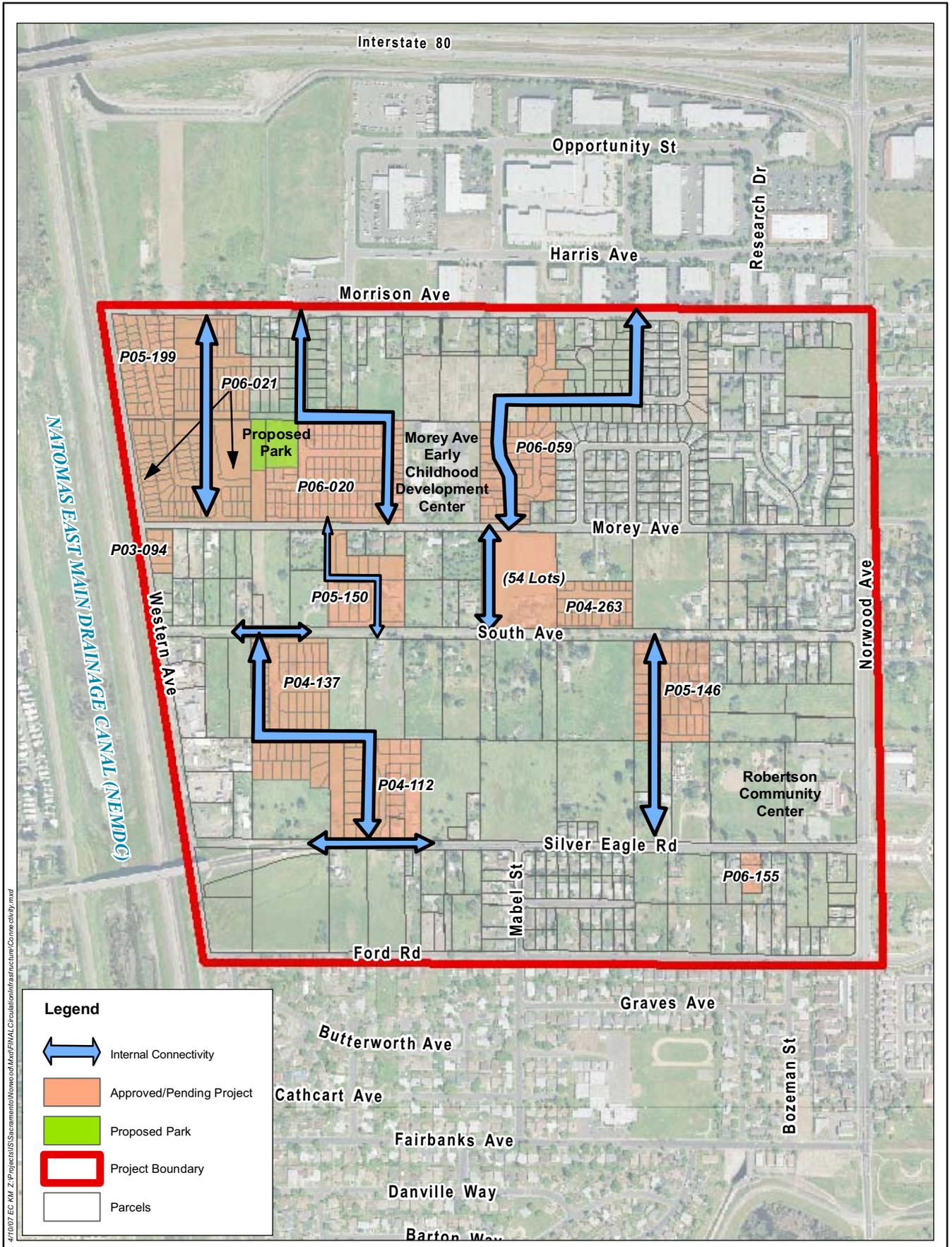


Figure 2-6
Approved and Pending
Tentative Maps



4/10/07 EC KM ZIP/projects/Sacramento/NonwoodMead/FINAL/Circulation/Infrastructure/Connectivity.mxd

Legend

-  Internal Connectivity
-  Approved/Pending Project
-  Proposed Park
-  Project Boundary
-  Parcels

Map Sources: City of Sacramento, 2005 (Aerial); Boundary Solutions, 2006 (Parcels)

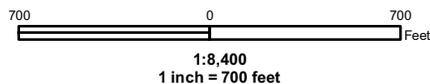


Figure 2-7
In-Tract
Connectivity Opportunities

street cross section. This same cross section, which provides a 30-foot paved street with a 6-foot parkway and a 5-foot sidewalk on each side, is also required for developments that the City requires to provide new north-south connectivity. For the internal roads within new developments, the City is requiring that developers use a 41-foot right-of-way that accommodates a residential street cross section that is similar to the 53-foot cross section, but without the parkway. Additionally, the City is requiring 46-foot right-of-ways along streets that are adjacent to parks to allow for parking adjacent to the park.

The following is a summary of the recommended improvements specific to each primary street within the project boundary.

Norwood Avenue

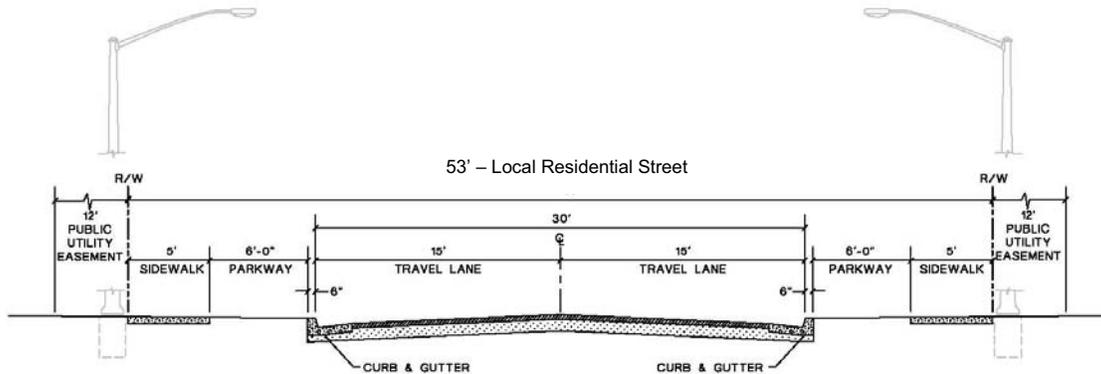
Based on current and projected ADT counts, Norwood Avenue is classified as a major collector consisting of two travel lanes and a bike lane in each direction and a two-way center left turn lane. According to *The General Plan Technical Background Report*, dated June 2005, there is currently approximately 12,000 ADT along Norwood Avenue. Approximately 4,600 ADT, calculated as an average of the estimated ADT from all streets connecting to Norwood Avenue (see Table 2-2 above), will be added to Norwood Avenue. It appears that Norwood Avenue can currently accommodate the additional vehicle trips anticipated to be generated as the project area is developed. However, the impacts upon the Norwood Avenue from future additional trips generated outside the project area have not been considered in this study. As such, improvements to enhance traffic flow along Norwood Avenue should be addressed in a specific study for the Norwood Avenue corridor that can address concerns along the entire length of Norwood Avenue, not merely for the portion adjacent to the project area.

It is recommended that the City stripe the bike lanes and properly mark them along Norwood Avenue to improve the safety of the bicyclists and request that RT provide bus shelters and other pertinent improvements at the existing bus stops to improve the comfort of riders as well as aesthetics. Additionally, as improvements occur along Norwood Avenue, sidewalk improvements should comply with ADA requirements, including removing impediments in the sidewalks and improving the curb ramps to current standards.

Morrison Avenue

It is estimated that approximately 4,200 daily vehicle trips will ultimately be generated by the anticipated developments adjacent to Morrison Avenue and within the project area. Existing improvements along the north side of Morrison Avenue include contiguous sidewalk with the curb and gutter, and lighting. As the parcels along the south side of Morrison Avenue are being developed, improvements to accommodate a 53-foot right-of-way are being required. The existing right-of-way for Morrison Avenue ranges in width from 40 feet to 53 feet. Therefore, developers are being required to provide the additional right-of-way necessary. The cross section shown in Figure 2-8, illustrates the proposed cross section for the south side of Morrison Avenue. The Bikeway Master Plan includes Morrison Avenue as a designated on-street bikeway.

**Figure 2-8
Local Residential Street with Parkway**



To improve circulation along Morrison Avenue, the City should explore opportunities to minimize large truck traffic associated with the industrial parcels located north of the project area. To prevent the large trucks from parking along Morrison Avenue, on-street parking may be omitted on the north side of Morrison Avenue. By omitting parking on the north side, a Class II bike lane, could be striped. Another possibility is to strategically post signs that indicate limited truck access or weight limits on Morrison Avenue to prevent the big rigs from using the street. Improvements to help deter truck traffic from traveling along Morrison Avenue may include bulb-outs at the intersection of Morrison Avenue and Norwood Avenue. This would give the drivers of large trucks the impression of a narrower street and reduced cross section.

As illustrated in Figure 2-8, pedestrian circulation and safety will be improved along the entire southern section of the street by including a sidewalk with ADA compliant ramps, and street lighting. From the western boundary of the industrial development to Western Avenue, improvements should include curb and gutter, sidewalk, ADA compliant ramps and street lighting. Appropriate signage and striping along the entire length of the street should be installed to encourage enforcement of the recommended improvements. Traffic calming devices should include designated cross walk areas, speed humps, and speed limit signs as warranted.

Morey Avenue

It is estimated that approximately 6,700 daily vehicle trips will be generated by the anticipated developments adjacent to Morey Avenue and activity at Morey Avenue Early Childhood Development Center. Existing right-of-way along Morey Avenue is limited and varies between 40 to 44 feet wide. Recently approved and pending tentative maps for developments along Morey Avenue show that Morey Avenue is being widened to include a 53-foot right-of-way and classified as a residential street. The 53-foot right-of-way will accommodate the 5-foot sidewalk and 6-foot parkway on each side of the street as required by City Standards and two (2) 15-foot travel lanes. Figure 2-8 above illustrates an example of the recommended cross section for Morey Avenue.

In addition, ADA compliant ramps and street lighting should be provided to create a safer environment, especially for students, parents and educators traveling to and from Morey Avenue Early Childhood Development Center. Traffic calming devices such as speed humps, stop signs, cross walks and striping should be appropriately located to ensure that traffic flows smoothly and predictably, thereby, providing a higher level of safety for pedestrians and bicyclists.

South Avenue

It is estimated that approximately 5,200 daily vehicle trips will ultimately be generated by the anticipated developments adjacent to South Avenue. Existing right-of-way along South Avenue is approximately 60 feet and this will accommodate the City's residential cross section shown in Figure 2-8. However, historic trees located within the South Avenue right-of-way and efforts to preserve these precious resources may ultimately dictate the actual cross section applied to South Avenue.

Since the City is requiring improvements to be accommodated within a 53-foot wide right-of-way (Figure 2-8), improvements will include a 6-foot parkway, 5-foot sidewalk on both sides of the street and allow for a 15-foot travel lane in each direction. Pedestrian circulation and safety will be improved with the addition of parkways and sidewalks. Additional safety improvements should include ADA compliant ramps and street lighting. Traffic calming devices, such as speed humps, stop signs, cross walks, and street signing and striping should also be appropriately located when warranted.

Silver Eagle Road

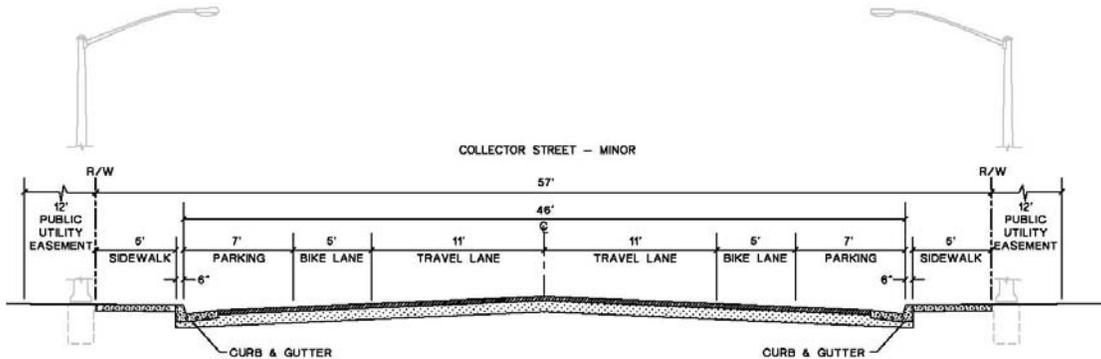
There are existing improvements along portions of the north and south side of Silver Eagle Road which include sidewalk constructed adjacent to rolled curb. It is estimated that approximately 5,200 daily vehicle trips will ultimately be generated by the developments adjacent to Silver Eagle Road and added to its existing ADT. The traffic count taken at the intersection of Silver Eagle Road and Mabel Street on August 3, 2005 measured a combined 10,595 vehicles traveling in both directions. The City's North Natomas Buildout Traffic Model estimates that in the year 2025, an approximate combined total of 12,429 vehicles will travel in both directions along Silver Eagle Road, west of Mabel Street, and an approximate combined total of 6,200 vehicles east of Mabel Street.

To accommodate the current and projected vehicle trips, the City has identified two projects in the 2006 TPG. The first will improve Silver Eagle Road between Norwood Avenue and Mabel Street, and the second will install a traffic signal at the intersection of Mabel Street and Silver Eagle Road. Additionally, per the City's General Plan, an on-street bikeway should be provided along Silver Eagle Road.

City staff is currently developing a cross section that will accommodate these needs within a 57-foot right-of-way. Figure 2-9 illustrates a possible cross section for Silver Eagle Road. The 57-foot right-of-way will accommodate a 5-foot sidewalk, 7-foot parking lane, and a 5-foot bike lane on both the north and south side of the road, allowing for an 11-foot travel lane in each direction. According to the City's 2010 Bikeway Master Plan, a 5-foot bicycle lane is permitted along

urban-type curbed streets, where parking is permitted, but parking stripes or stalled markings are not included. As the City reviews and approves tentative maps for parcels adjacent to Silver Eagle Road, direct driveway access to Silver Eagle Road should not be allowed, or at least strongly discouraged, to prevent further impedance of traffic along this road, particularly as traffic trips increase.

**Figure 2-9
Collector Street-Minor**

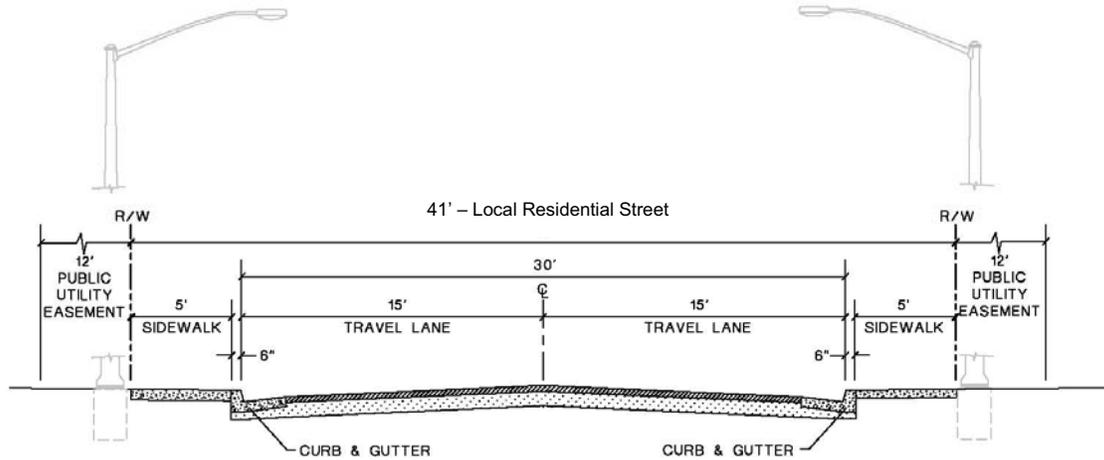


It is recommended that all rolled curb along Silver Eagle Road be replaced with 6-inch barrier type curb and that the proposed street improvements be extended along the entire length of Silver Eagle Road to the existing bridge that provides access west of NEMDC. Pedestrian and bicyclist circulation and safety will be enhanced by including ADA compliant pedestrian ramps, street lighting along the entire length of Silver Eagle Road, and appropriately located designated cross walks and speed limit signs. To accommodate the public transportation users, the City should request that RTD provide bus shelters at existing bus stops. Additionally, the City should evaluate whether the recommended 2006 TPG project to replace the existing 3-way stop and flashing red light configuration at the intersection of Mabel Street and Silver Eagle Road with a signalized intersection should be expedited, to ensure a higher level of safety between vehicular, pedestrian, and bicycle traffic and improve the level of service in the general vicinity by potentially relieving some of the existing traffic congestions.

Ford Road

It is estimated that the anticipated developments along the northern portion of Ford Road will increase the daily vehicle trips by approximately 1,900 trips. Ford Road, classified as a residential street, is a two-lane east-west local road. Its right-of-way varies from 40 feet to 60 feet. Figure 2-10 illustrates the recommended street cross section for Ford Road, which is also the recommended cross section for the development of internal in-tract roads within the Norwood area.

**Figure 2-10
Local Residential Street without Parkway**

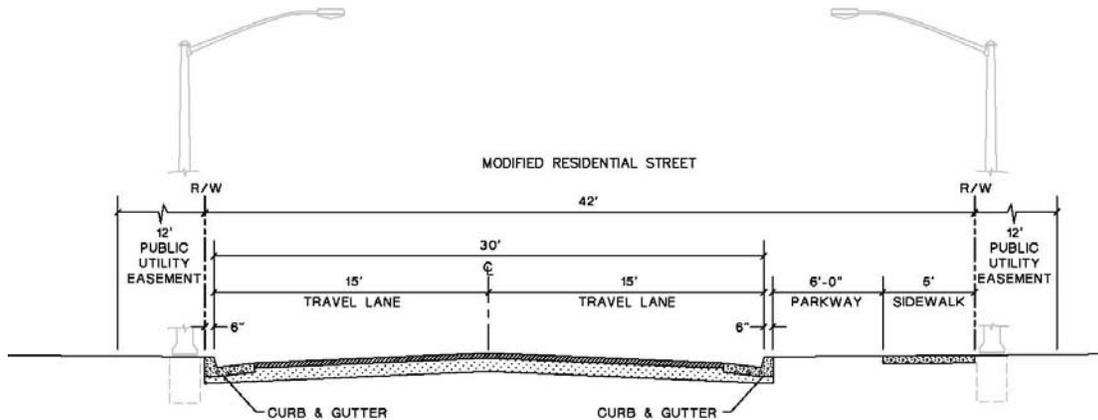


There are existing improvements along portions of the north side of Ford Street that were constructed with recent developments. Future improvements along this street should be designed to match these existing improvements to provide a unified appearance along this corridor. Improvements along the southern portion of the street appear to extend from Norwood Avenue to Western Avenue. There is direct access to Ford Road from residential driveways. To accommodate the RT transit passengers, the City should request that RT provide bus shelters at existing bus stops if warranted by the projected ridership. According to the traffic signals section of the 2006 TPG, a signalized intersection with Norwood Avenue is recommended and is ranked 13th among signalized projects.

Western Avenue

The estimated 4,500 daily traffic trips along Western Avenue is an average of the cumulative daily trips calculated from the primary east and west roads that connect to Western Avenue. Its current right-of-way varies from 40 feet to 55 feet. As a primary north-south connector in the Norwood area, Western Avenue should be developed with the 53-foot right-of-way cross section shown in Figure 2-8. However, because the land west of the avenue is owned by the Western Pacific Railroad Company, it is likely that it will not be developed, nor will it need sidewalk improvements. As such, the City has reduced the right-of-way requirements along Western Avenue to 42 feet. The City is requiring 30-foot curb to curb improvements that include curb and gutter, a 6-foot parkway and 5-foot sidewalk along the eastern side of Western Avenue. Only a 6-inch curb along the east side of Western Avenue is being required. Western Avenue is designated as a Class II on-street bikeway in the City’s General Plan. The proposed 42-foot right-of-way will allow for on street parking and the bike route as indicated in the General Plan. Figure 2-11 illustrates the proposed cross section for Western Avenue

**Figure 2-11
Modified Local Residential Street with Parkway**



Street lighting should be installed along the entire length of the street to deter illegal dumping of trash. With additional illumination, perpetrators will be less likely to dump trash out of fear of being easily identified. The additional lighting will also aid the ability of the 24-hour surveillance camera, surreptitiously located along Western Avenue, to capture the images of violators.

Proposed North-South Connectivity

Additional north-south access from Silver Eagle Road north through the project area would improve traffic flow and provide an alternative route to commuters using Western Avenue. Based on approved and pending tentative maps, connectivity between Morrison Avenue and Silver Eagle Road may ultimately be provided via in-tract streets. The City has started, and should continue, to require streets within proposed developments that have the potential of providing north-south and east-west connectivity to use the 53-foot right-of-way cross section shown in Figure 2-8. Providing connectivity between Silver Eagle Road and South Avenue will allow commuters to and from Western Avenue to access Silver Eagle Road without traveling east to Norwood Avenue or through the residential portions along Ford Road and Mabel Street. This will further enhance the circulation within the project area by reducing unnecessary travel through the residential neighborhoods.

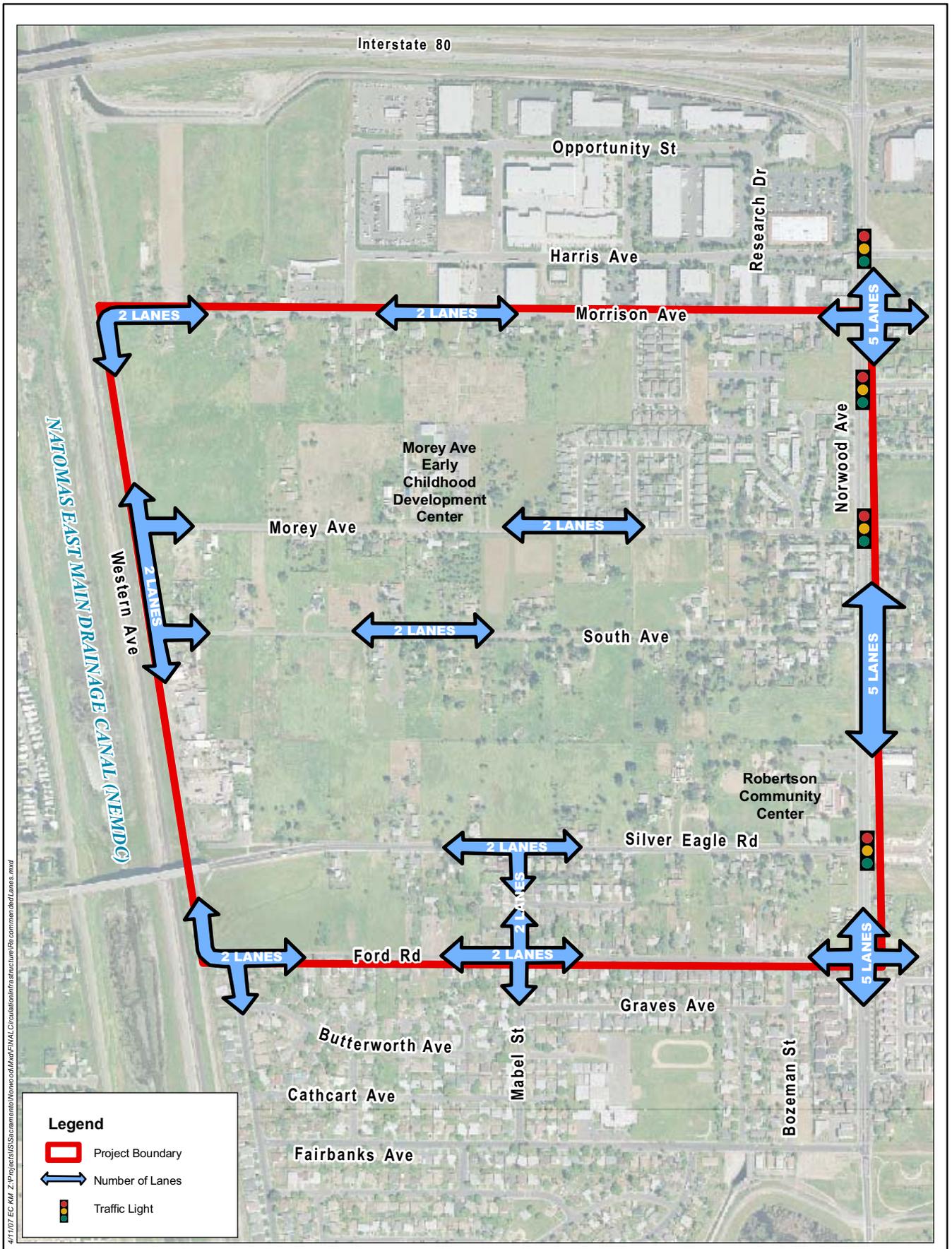
2.4 Summary of Recommended Circulation Improvements

Improvements to the primary east-west and north-south roads and sidewalks in the Norwood area will improve traffic circulation and increase pedestrian safety. Table 2-3 summarizes circulation improvements recommended for each of the primary roads within the project area. Each element provides the City's planning staff guidance when conditioning and approving developments and other improvements in this area, and specifically provides a plan to create additional, internal circulation patterns and traffic flow. The ultimate dimensions of the curb-to-curb roadway widths will be determined by the existing curb and gutter locations, the amount of available right-of-way and the ability of the City planning staff to determine the timing of when the ultimate build-out conditions will warrant the recommendations in this study.

**Table 2-3
Recommended Circulation and Roadway Improvements**

Norwood Area Roadways	Roadway	Curb/Gutter	Parkway	Sidewalk	Bike Lanes	Bus Stop Improvements	Lighting	Traffic Calming Devices				
								Speed Humps	Stop Signs	Cross-walks	Traffic Signals	Speed Limit
Norwood Avenue					•	•					•	
Morrison Avenue	•	•		•			•			•		•
Morey Avenue	•	•	•	•			•	•	•	•		•
South Avenue	•	•	•	•			•	•	•	•		•
Silver Eagle Road	•	•	•	•	•	•	•			•	•	•
Ford Road	•	•		•		•	•			•	•	
Western Avenue	•	•	•	•	•		•		•			•

Figure 2-12 shows the proposed recommended lane configurations and existing street signals for the primary streets within the project area.



Map Sources: City of Sacramento, 2005 (Aerial);
Boundary Solutions, 2006 (Parcels)

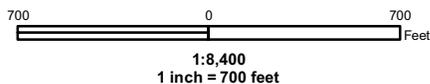


Figure 2-12
Recommended Lanes

Chapter 3

Infrastructure Assessment

This chapter describes the general conditions of the infrastructure for the Norwood area which includes parks and utilities. A discussion of known and recommended improvements, and actions to accommodate the planned future growth in the Norwood area is included for parks and utilities, followed by a summary of recommendations for each utility.

The utilities investigated include:

- Potable Water
- Sanitary Sewer
- Storm Drainage
- Electrical Service, including street lighting
- Telecommunications
- Cable Service
- Natural Gas Service

3.1 Parks

Parks are an important component of land use planning and should be considered when developing urban areas. The City of Sacramento categorizes parks into three distinct types including neighborhood, community, and regionally serving parks. Neighborhood and community parks help contribute to a sense of community by providing gathering places for recreation, entertainment, sports or quiet relaxation. Regional parks are typically larger and serve the needs of the entire city or region. Table 3-1 provides a summary of each of the City's park types with service levels, size guidelines and service area descriptions.

**Table 3-1
City of Sacramento Park Planning Criteria**

Types	Park Service Level (acres per 1,000 people)*	Size Guidelines	Service Area Guidelines
Neighborhood Serving a) Urban Plazas/Pocket Parks b) Neighborhood Parks	2.5	Less than 5 acres 5-10 acres	Within 1/2 mile radius
Community Serving	2.5	10-60 acres	Drivable from several neighborhoods; Within 3 mile radius
Regional Serving	8	Varies	Citywide and beyond

* Factor obtained from Table 7: Park Service Level Goals in the City's Parks and Recreation Master Plan

The Quimby Act (Government Code Section 66477) was established by the California legislature in the mid-1960s to help preserve open space and parkland. It authorizes local

governments to establish ordinances requiring developers of new subdivisions to dedicate land for parks, pay an in-lieu fee, or a combination of the two. The City of Sacramento’s own Quimby ordinance is codified in Chapter 16.64 of the Municipal Code. Parkland dedication requirements are based upon the City’s goal to provide 5 acres of neighborhood and community parks for every 1,000 residents. The required acreage is calculated based on a formula that assigns a constant to the various housing types. These factors, when multiplied by the number of dwelling units, serve to achieve the City’s parkland goals. Of the five acres of neighborhood and community parks, 2.5 acres will be neighborhood serving and 2.5 acres will be community serving parks. Table 3-2 provides a summary of the estimated park acreage that may be required to serve the project area. Based on the existing zoning within the project area, approximately 34 acres of parkland may be required.

**Table 3-2
Park Area Requirements Based on Zoning**

Zoning	Total Acres per Zone	DU/ Acre	Total DU	Factor*	Park Acreage Required
R-1	168.9	8	1,351	0.0149	20.1
R-1A	47.3	12	568	0.0149	8.5
R-2A	3.0	17	51	0.0088	0.5
R-2B	6.5	21	137	0.0088	1.2
R-3	14.3	29	415	0.0088	3.7
M-1	7.5	-	-	-	-
Mixed Use	0.9	-	-	-	-
	248.4		2,522		34

* Factors not applicable to M-1 or Mixed Use Zoning

Currently, the project site’s parks consist of Robertson Community Park and Recreation Center and the community-serving recreational facilities at Morey Avenue Early Childhood Development Center. The *Sacramento Parks and Recreation Master Plan 2005 – 2010* indicates that the Robertson Community Park includes approximately five (5) acres of neighborhood serving facilities, while the remaining 9.88 acres are designated as community serving facilities. However, this statement is inaccurate based on new information. At the time the Master Plan was prepared, an effort was underway to develop the land adjacent to Robertson Community Center with a Boys and Girls Club and sport fields. The land is owned by the Sacramento Housing and Redevelopment Agency (SHRA). The project has not been implemented and SHRA no longer has plans to develop the property in this way. Therefore, the acreage figure indicated in the Master Plan is incorrect for the Robertson Community Center and should be corrected to a total of ten acres to reflect the number of park acres owned and operated by the City of Sacramento Parks and Recreation Department. Robertson Community Center is developed with approximately 10 acres of lighted softball and soccer fields, volleyball, basketball and tennis courts, a wading pool, picnic areas, and a community center. Five of the acres are credited toward neighborhood park acres and the remaining 5 acres are credited toward community park acres.

The Morey Avenue Early Childhood Development Center consists of approximately 10.25 acres of which five (5) acres are school related facilities and the remaining 5.25 acres contain

community-serving garden plots. According to the City of Sacramento’s Parks and Recreation Master Plan, if City school sites are ten (10) acres or greater, then a portion of the site is assumed to provide community serving facilities that are available to the public for recreational use. An assumption is also made that an average of 40 percent of a school site is available to the public when the school is not in session. Therefore, 4.1 acres of the Morey Avenue Early Childhood Development Center may be counted toward the project area’s park allocation requirements for community serving facilities.

While the Robertson Community Center and the facilities at the Morey Avenue Early Childhood Development Center are the only existing facilities within the project area, there is currently a pending development application proposing to dedicate approximately 2.5± acres for neighborhood park use within the project area. The proposed park will be located between Morey Avenue and Morrison Avenue in the northwest corner of the project site. This new facility will help meet the neighborhood park requirements for the project area.

Neighborhood and Community Parks

The facilities available at the Robertson Community Center and Morey Avenue Early Childhood Development Center meet the criteria for neighborhood and community serving facilities. The Robertson Community Center and the Morey Avenue Early Childhood Development Center contribute five (5) acres towards neighborhood serving facilities and 9.1 acres towards community serving facilities. The proposed 2.5 acre park to be located between Morey Avenue and Morrison Avenue will be a neighborhood serving facility. The proposed park, Robertson Community Center, and Morey Avenue Early Childhood Development Center contribute a total of 16.6 acres of land within the project boundary toward neighborhood and community parks. Table 3-3 is a summary of the current conditions for parkland allocation and use within the project boundary.

**Table 3-3
Norwood Area Existing and Planned Parks Facilities**

Park Type	Existing Parks (Ac.)	Proposed Parks (Ac.)	Total (Ac.)
Neighborhood Serving	5.00	2.50	7.50
Community Serving	9.10	0.00	9.10
Total	14.10	2.50	16.60

As identified in Table 3-2, 34 acres of neighborhood and community parks will be required at build out of the project area. The 16.6 acres of parkland that currently exists and proposed to be developed offsets the total park need, leaving a deficit of 17.4 acres. The deficit is allocated among neighborhood parks (9.5 acres) and community parks (7.9 acres) such that the ultimate total of each park type is equal to each other for the area.

Regional Parks

The service area guidelines for regional parks are determined on a citywide basis. The City’s Parks and Recreation Master Plan requires eight (8) acres of regional parks for every 1,000 residents. Based on the estimated ultimate population for the Norwood area shown in Table 3-4, approximately 43.8 acres will be required for regionally serving parks. Currently the closest regional parks to the project site include Del Paso Regional Park, located in the Arden Arcade Community Plan Area, and the North Natomas Regional Park, located in the North Natomas Community Plan Area. Both parks are within the service area for the project site and no deficit in regionally serving parks is anticipated from full development of the project area.

**Table 3-4
Estimated Project Area Population**

Zoning	Total DU	Residents per DU*	Population at Buildout
R-1	1,351	2.55	3,460
R-1A	568	1.91	1,085
R-2A	51	1.54	77
R-2B	137	1.54	211
R-3	415	1.54	639
M-1	-	-	-
Mixed Use	-	-	-
Total	2,522	-	5,472

* Factors provided by City staff

As summarized in Table 3-5, there are approximately 14.1 acres of existing parkland within the Norwood project area. With the approval of the proposed 2.5 acre park, the project site will include a total of 16.6 acres out of the 34 acres required for neighborhood and community serving type of parks. As the project area continues to be developed, an additional 17.4 acres should be allocated to meet the City’s goals pertaining to parkland availability. Parkland dedication should be considered whenever a residential subdivision exceeds 50 residential units. Due to the relatively small size of the remaining lots in the project area, it is likely that the City will need to acquire land within the project area in order to close the gap of providing 2.5 acres of neighborhood parkland for every 1,000 residents. The City should begin an active program to identify parkland for acquisition to meet its neighborhood park requirements.

**Table 3-5
Norwood Area Park Requirements Summary**

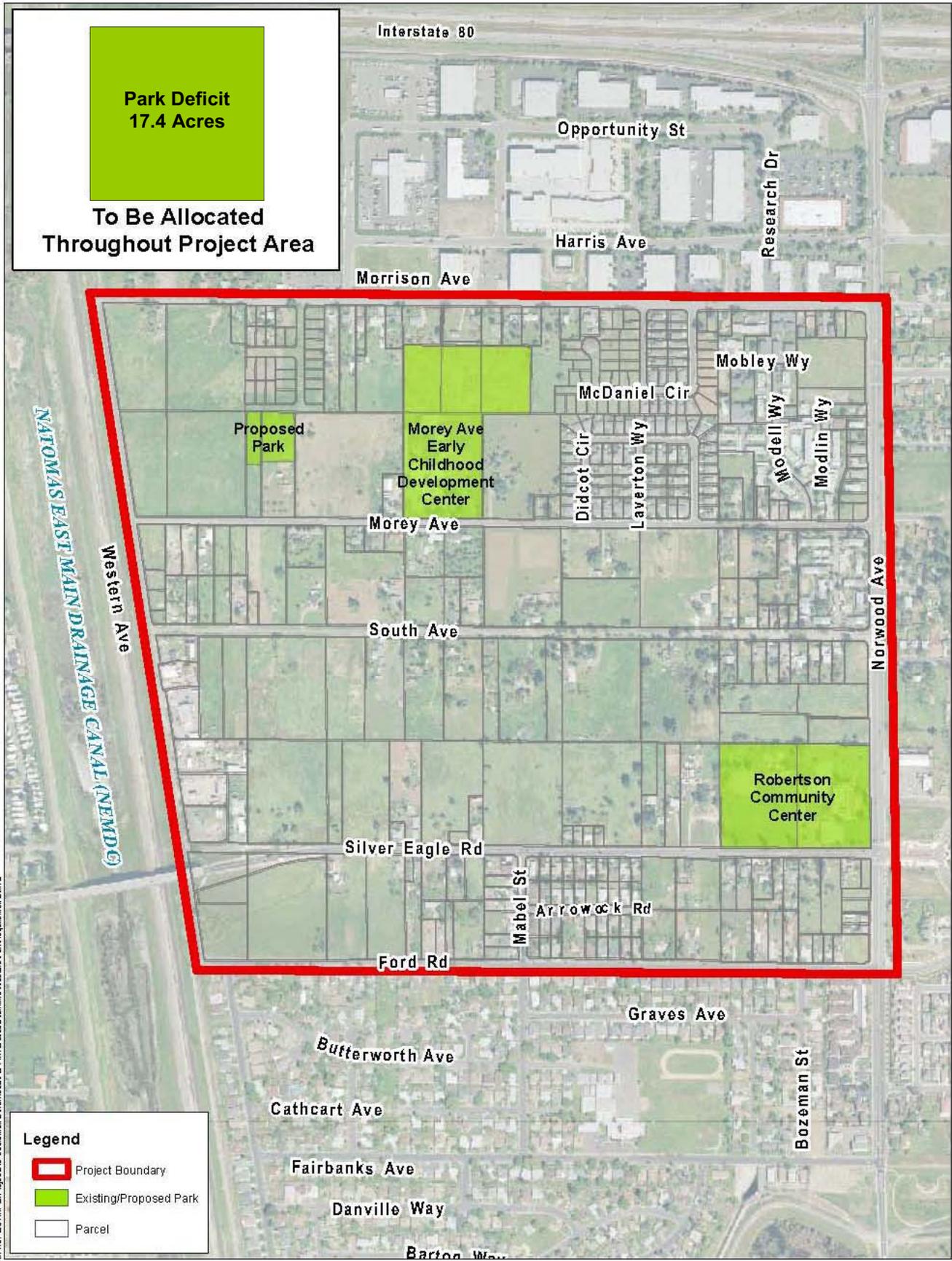
Park Type	Park Service Level (acres per 1,000 people)*	Park Acreage Required	Existing Park (Ac.)	Proposed Park (Ac.)	Park Deficit (Ac.)
Neighborhood Serving	2.5	17	5.00	2.50	9.5
Community Serving	2.5	17	9.10	0.00	7.9
Regional Serving	8.0	43.8	43.80	0.00	0.0
Total		77.8	57.90	2.50	17.4

* Factor obtained from Table 7: Park Service Level Goals in City Parks and Recreation Master Plan

The location for park land required for regionally serving facilities is determined on a city-wide basis and will be evaluated since the Del Paso Regional Park and the North Natomas Regional Park are within the vicinity of the project site. Figure 3-1 illustrates the acreage necessary to meet the City's goals for park land allocation relative to the project site.

**Park Deficit
17.4 Acres**

**To Be Allocated
Throughout Project Area**

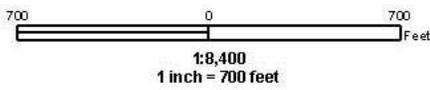


Legend

- Project Boundary
- Existing/Proposed Park
- Parcel

4/1/07 ECK/KW Z:\PROJECTS\SRACEMEN\B\WOODRUFF\FINAL\Circular\NORWOOD\Structure\Plan\Requirements_S.mxd

Map Sources: City of Sacramento, 2005 (Aerial); Boundary Solutions, 2008 (Parcels)



**Figure 3-1
Norwood Park Requirements**

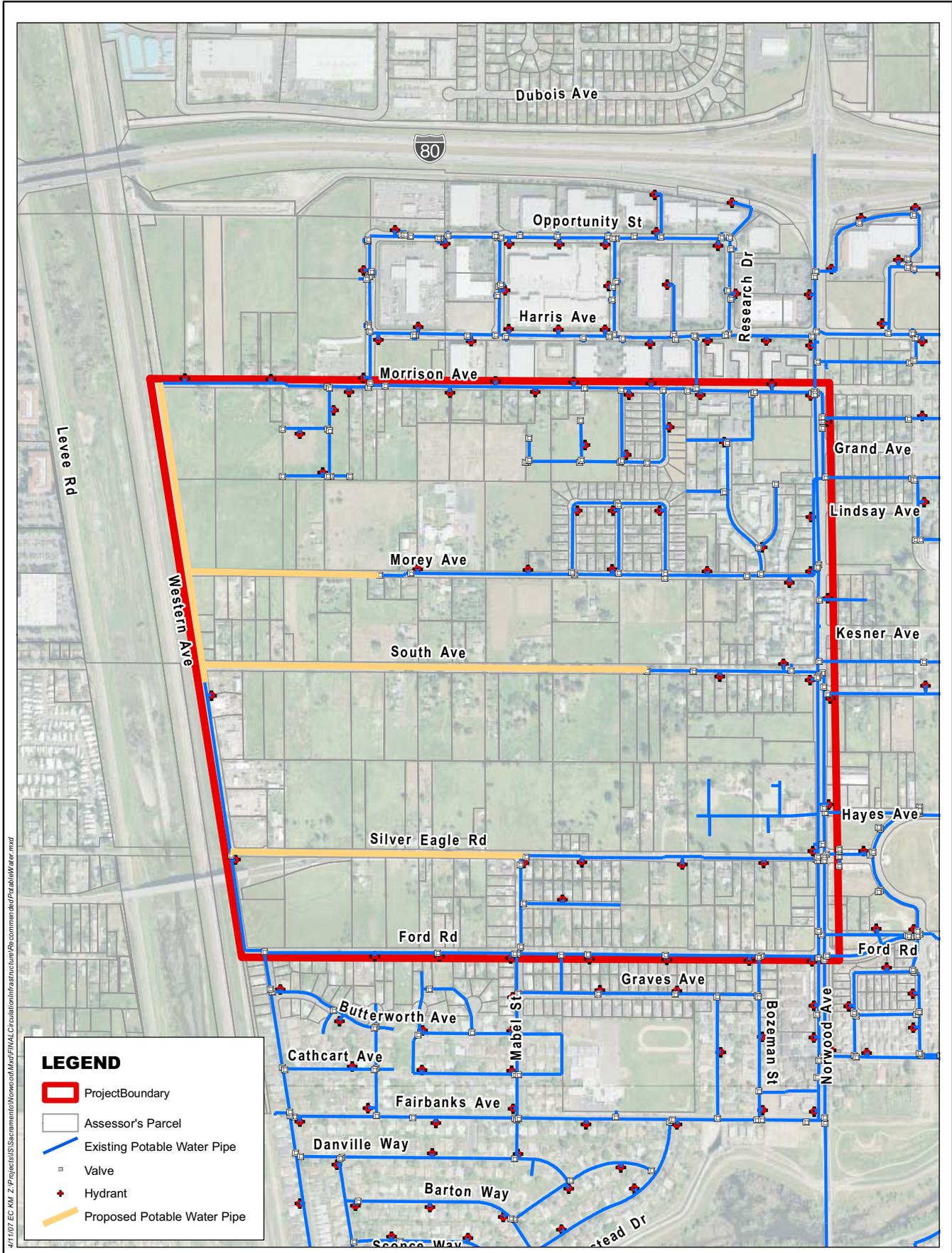
3.2 Potable Water

Minimum pressure requirements are based on the water system supplying both peak hour domestic and firefighting operation requirements. To provide adequate pressure for service and fire protection flows, the City's Water Design Guidelines call for a minimum of 8" diameter lines for residential services and 12" diameter lines for commercial and industrial areas. The City's Municipal Code stipulates that fire hydrants on private property must not be further than 150 feet from any building or structure. To provide adequate fire service, fire hydrants should be located no further than 500 feet apart.

Approval of developer projects in the area requires developers to extend the water lines to their parcels and provide some interconnectivity for redundancy. As such, the water system is being extended west along all primary streets and connecting to the existing or a new line in Western Avenue. As a minimum, an estimated 7,275 LF of 8" diameter PVC water main and 15 fire hydrants should be installed along Morey, South, and Western Avenues and Silver Eagle Road. Figure 3-2 shows the locations for waterline pipelines to create a redundant system for the Norwood area. To ensure redundancy in water service, the water lines should be connected to both of the water service mains that run parallel to each other in Norwood Avenue. These water mains are a 12" diameter main and an 8" diameter main, both made of transite material, and are connected to different water service zones. If one service zone fails, the other service zone will provide water to the Norwood water system until the primary system is repaired and in service.

The City should conduct a study of the water system to determine the proper diameters, materials and appurtenances needed to adequately serve the area's planned development. The study should discuss whether the service zones should be interconnected and whether pressure reducing and/or boosting stations may be required to maintain adequate pressure. The results of this study will be useful to the City staff that is conditioning development.

Currently, developers are required to install water pipelines to serve their developments and provide adequate fire protection. Staff should continue conditioning tentative maps to improve system redundancy by requiring developers to connect the new systems to two different, existing water pipelines. These systems being installed and planned to be built by the developers will complete the looped system recommended above, as well as provide additional redundancy because the water systems will be inter-connected among the developments.

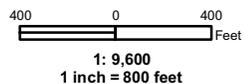


4/11/07 EC KM ZIP\projects\Sacramento\Nove\04\NAL\Circulation\Infrastructure\Recommend\PotableWater.mxd

LEGEND

- Project Boundary
- Assessor's Parcel
- Existing Potable Water Pipe
- Valve
- Hydrant
- Proposed Potable Water Pipe

Map Sources: City of Sacramento, 2005 (Aerial, Water Data);
Boundary Solutions, 2006 (Parcels)



**Figure 3-2
Recommended
Potable Water**

3.3 Sanitary Sewer

Since the condition of the system is unknown, an inspection and assessment program should be developed to determine whether repair, rehabilitation, or replacement of certain pipe segments and manholes is necessary. On average, the inspection and assessment of one (1) mile of sewer pipe, including traffic control permitting and reporting, costs approximately \$18,000. To inspect and assess the approximately 25,000 feet (4.71 miles) of sewer pipelines in the Norwood area would cost approximately \$85,000.

Currently the sewer system capacity appears to be adequate for the existing and future development in the area. Based on general calculations, it was determined that the existing sewers will not exceed 50% capacity, as shown in Table 3-6. Using the population at buildout the ultimate flow for each sewer pipeline was determined. From this, the Average Dry Weather Flow (ADWF) was calculated based on a sewer flow rate of 80 gallons/capita/day and the peaking factors associated with each zone type. Multiplying the ADWF by the peaking factor yields the Peak Dry Weather Flow (PDWF). The PDWF for each zone along each sewer was summed to determine the ultimate PDWF. Using Flowmaster, a computer application, it was verified that the existing sewers are adequately sized.

**Table 3-6
Sewer Capacity Verification**

Street	PDWF, mgd	Roughness Coefficient	Channel Slope, ft/ft	Diameter, in	Percent Full, %
Morrison Ave	0.018	0.010	0.005	10	8.2
Morey Ave	0.021	0.010	0.005	10	8.8
South Ave	0.017	0.010	0.005	6	15.4
Silver Eagle Rd	0.022	0.010	0.005	8	12.0
Ford Rd	0.009	0.010	0.005	6	11.3

Because of the unknown condition of the existing sewer, and its apparent adequate capacity, sanitary sewer improvements are not recommended in this report. Any immediate improvements should be determined based on the planned development and the projects conditioned appropriately to either make the necessary improvements or contribute to a sewer fund for future capacity upgrades. As noted in Chapter 1, the sewer system is relatively flat with little slope in the pipes for conveying wastewater by gravity. Thus, as tentative maps are reviewed, certain developments may require small sewer lift stations to convey the wastewater generated by the development to reach gravity portions of the sewer. The alternative is to reconstruct long reaches of sewer, making them deeper to accommodate all gravity flow. However, this solution often requires miles of pipeline to be reconstructed at a price that exceeds the installation and routine maintenance of a sewer lift station. Therefore, each tentative map submittal should be accompanied by a sewer study for the proposed development.

3.4 Storm Drainage

Based on preliminary results from a storm drainage master plan for basin 157, the storm basin that serves the northern half of the Norwood area, and the existing storm drainage system is at capacity. As development continues in the Norwood area, the impervious area will increase, ground infiltration will decrease, and storm water runoff will increase in intensity and quantity. The master plan provides several alternatives to improve storm water drainage in the area. Consultant West Yost and Associates (WYA) modeled the storm flows for the area, and included the future flows for allowable development based on the zoning. One of WYA's alternatives recommends the construction of storm water detention ponds to collect the storm water runoff to get it away from the streets and neighborhoods, and then release it into the waterway system under controlled conditions. Another option is to increase the pumping capacity of Sump 157. With both alternatives, certain storm pipes must be upsized and some new pipes installed to adequately convey away the storm water.

The recommendations that will be made in the Storm Drainage Master Plan for Basin 157 should be implemented when appropriate. Additionally, the City should complete a master plan for Basin 158. It is anticipated that similar improvements, such as additional detention ponds and increased piping, will be necessary to accommodate the future development in the Norwood area. Installing curb and gutters as part of the roadway improvements will also help direct storm drainage flows and they will also be more effective and easier to maintain than drainage swales and culverts.

Tentative map submittals should be accompanied by a storm drain study that estimates the increased storm water run-off, indicates the adequacy of the existing storm drainage system that will accept the flows, and recommend methods to detain the increased run-off on-site. City staff has started conditioning projects to provide on-site detention, whether that is through above ground detention ponds, or by over-sizing the storm drain piping on-site to act as underground detention ponds.

3.5 Electrical Service / Street Lights

Street lighting provides safety, comfort, and security for pedestrians, bicyclists, and motorists during non-daylight hours. Except for the new developments, street lighting is random and often non-existent. The citizens have requested additional street lighting to improve safety and possibly reduce crime and littering. The City would be responsible to install and maintain any additional street lights for areas not required to install lights as part of the tentative map conditions. Typically, new developments are conditioned to install street lighting prior to their final approval. New developments are required to install underground service for all proposed street lighting.

It is recommended that street lights, staggered and spaced approximately 150 feet apart, be installed along the primary streets within the project area to provide a safe environment for pedestrians, bicyclists, and motorists. The street lights that are installed should have a low profile to provide adequate lighting for pedestrians and bicyclists, while at the same time providing sufficient illumination for the roadway, in accordance with the City of Sacramento's Transportation Signing and Striping Drawing Standards. The addition, relocation and/or replacement of existing street lights should occur in conjunction with any street improvements

required for developments in the project area. If the City proceeds with street improvements, the street lighting should be installed at that time. Property owners would pay for the power to operate the lights through their annual property tax bills.

Morey Avenue and Western Avenue are two streets that should have priority for street lighting installation. Adequate illumination is key for the safety of the students, parents, and teachers affiliated with the Morey Avenue Early Childhood Development Center. Also, adequate lighting along Western Avenue will deter illegal dumping and other criminal activity along this road because the additional lighting should discourage perpetrators out of fear of being seen and identified.

3.6 Telecommunications / Cable

No upgrades or improvements are recommended at this time. Both AT&T and Comcast will install additional service lines as needed to meet the needs and demands of its customers. New services should be installed underground, in accordance with the service providers' current standards. Where possible, existing services should be converted from overhead to underground.

3.7 Natural Gas

No upgrades or improvements are recommended at this time. The Pacific Gas and Electric Company (PG&E) will install additional service lines as needed to meet the needs and demands of its customers.

Chapter 4

Recommendations and Implementation Options

The pace at which development occurs in the Norwood area and the demands of other projects within the City will determine the extent of implementation by the City of the various recommendations made in this report. The existing infrastructure, in its present condition, cannot support full build out. The utilities, roadways, and public services must be improved to accommodate the anticipated future growth. This chapter summarizes the recommendations to improve the circulation, roadway infrastructure, parks, and utilities in the Norwood area. A discussion on probable costs for the improvements is also included.

4.1 Recommended Circulation Infrastructure Improvements

To achieve the goals and support the policies of the City of Sacramento as they pertain to the transportation system, transportation planning must consider future growth. As the Norwood area continues to develop, transportation improvements to support and sustain the efficient and safe movement of people within the project boundary will be necessary. These recommended improvements can be phased in over time, as the developments are built. Current and future daily traffic trips, access to Morey Avenue Early Childhood Development Center, and a requirement for on-street bikeways indicate that the primary streets within the Norwood area should be improved to accommodate the City's standard street classifications, summarized in Table 4-1.

Table 4-1
Recommended Street Classification

Street	Classification	Required ROW
Norwood Avenue	Major Collector	Varies
Morrison Avenue	Residential	53 feet
Morey Avenue	Residential	53 feet
South Avenue	Residential	53 feet
Silver Eagle Road	Minor Collector	57 feet
Ford Road	Residential	41 feet
Western Avenue	Modified Residential	42 feet

These recommended roadway improvements will provide sidewalks for pedestrians, and, on most of the roads listed above, a parkway between the sidewalk and the roadway for additional safety of the pedestrians. Continuity and connectivity of the sidewalk, curb, and gutter improvements will be a challenge because of the noncontiguous nature of the development within the project area. Parcels with tentative map applications are being required to build the recommended improvements, but the adjacent parcels whose owners are not planning development, will remain in their existing condition. On a case by case basis, the City must determine whether it will undertake the planning, design, and construction of the sidewalk and roadway improvements for the parcels not being developed along the primary roads, so that the continuity pertaining to transportation related improvement is achieved. The additional cost of acquiring right-of-way must be included in these projects.

Figures 4-1, 4-2, and 4-3 show the right-of-way limits needed to construct these recommended classifications. The existing data shown on these figures is approximate, based on GIS data provided by the City. Detailed survey information must be acquired to verify road widths and impacts to individual parcels. If the City cannot acquire the right-of-way through dedications by developers, the City may consider acquiring the right-of-way and building the improvements. To minimize the amount of right-of-way to be purchased by the City, staff may develop a formula to determine when the City should acquire right-of-way and make the street improvements. The formula should consider several factors that include width of right-of-way required, total lineal feet of right-of-way, safety issues created by not implementing improvements, available funding and grant programs, and the likelihood of future development by the parcel owner.

South Avenue, for which the existing right-of-way is 60 feet, is the only street in the Norwood area that can accommodate the recommended 53-foot cross section without requiring additional right-of-way dedication. For South Avenue, the City can use the available right-of-way for landscaping, and to protect and keep the existing trees that line this street. Also, the City need not improve the west side of Western Avenue because development will not likely occur within the Western Pacific Railroad Company right-of-way. As such, curb, gutter, or sidewalk need only be built on the eastern side of Western Avenue.

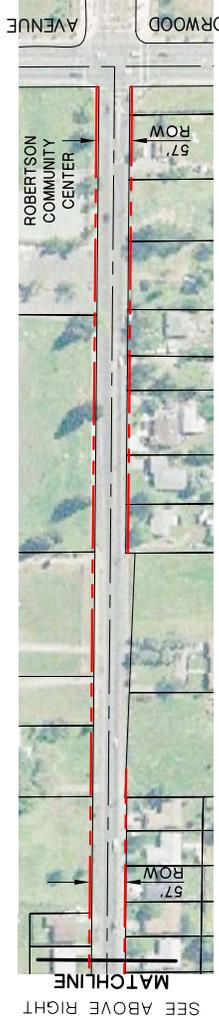
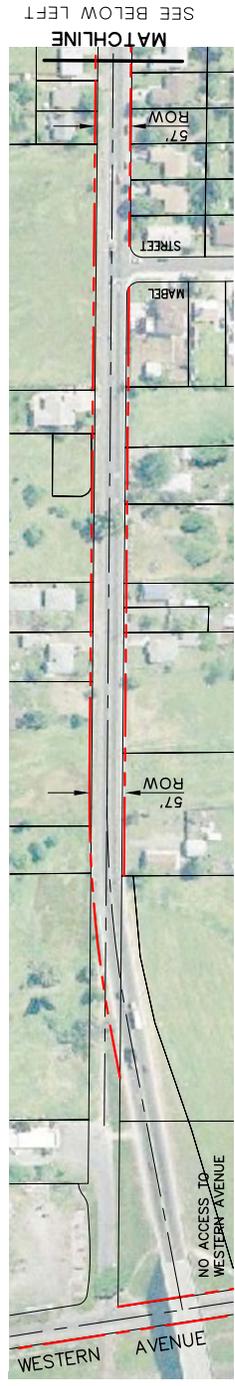
Several of the streets, Morrison Avenue, Western Avenue, and Silver Eagle Road, are designated to accommodate on-street bikeways per the Bikeway Master Plan. While the recommended cross section for Morrison and Western Avenues will not accommodate a Class II bike lane, when these streets are fully developed, they should be designated as Class III bike routes. Because of the higher volume of traffic anticipated on Silver Eagle Road, dedicated Class II bike lanes should be included with the street improvements.

The circulation and roadway recommendations identified above and in Chapter 2 can be summarized as follows:

- Condition tentative maps to require a minimum 53-foot right-of-way cross section for the primary east-west roads (see Figure 2-8)
- Condition tentative maps to create 53-foot right-of-way roadways in the north-south direction that will ultimately provide connectivity between Morrison Avenue and Silver Eagle Road
- Promote internal residential connectivity that fosters safety, privacy, and design diversity by using a minimum 41-foot right-of-way cross section (see Figure 2-10)
- Condition the addition of sidewalk, curb, gutter, storm drainage inlets and piping, and street lighting along all streets
- Requiring developments to provide through roads in lieu of cul-de-sacs
- Study connectivity options between Silver Eagle Road and Western Avenue
- Install traffic calming devices where warranted by City criteria, with particular attention to limiting truck traffic along Morrison Avenue and reducing speeds along Morey Avenue
- Design Morrison Avenue, Western Avenue, and Silver Eagle Road to accommodate on-street bikeways
- Request bus stop improvements if justified by RT ridership criteria
- Acquire adequate right-of-way, when determined necessary, to build the recommended road classifications



SOUTH AVENUE



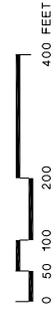
SILVER EAGLE ROAD

NOTE:
LOCATION OF RIGHT-OF-WAY IS APPROXIMATE

- LEGEND**
- EXISTING RIGHT-OF-WAY
 - - - PROPOSED RIGHT-OF-WAY

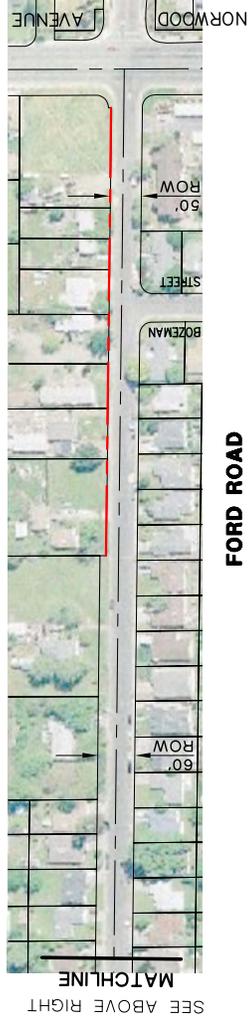


SCALE: 1" = 200'

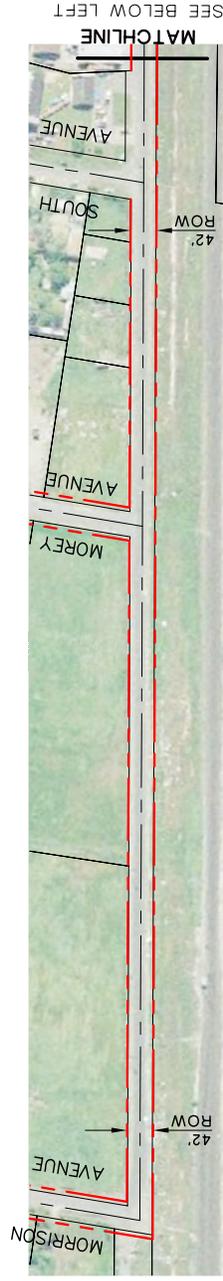


**NORWOOD AREA
CIRCULATION AND INFRASTRUCTURE
IMPROVEMENTS REPORT
ROW SITE PLAN**

Figure 4-2



FORD ROAD



WESTERN AVENUE



NOTE:
LOCATION OF RIGHT-OF-WAY IS APPROXIMATE

- LEGEND**
- EXISTING RIGHT-OF-WAY
 - - - PROPOSED RIGHT-OF-WAY

**NORWOOD AREA
CIRCULATION AND INFRASTRUCTURE
IMPROVEMENTS REPORT**
ROW SITE PLAN

Figure 4-3

4.2 Park Improvements and Funding

Neighborhood and community parks must be maintained and enhanced to provide the necessary services to the community. Improvement plans for Robertson Community Center includes \$300,000 in the fiscal year 2007/2008 budget to make various improvements including rehabilitating the tennis courts. Additional improvements will be identified upon final budget approval in July 2007. For improvements that may not be funded during the City's budget cycle, funding from statewide grants may be pursued. The City is currently working to identify potential projects that may qualify for grant funding from Proposition 1C. Proposition 1C is a statewide funding program that supports a variety of housing and development programs and targets disadvantaged neighborhoods and infill areas. A portion of Proposition 1C targets the development, acquisition or rehabilitation of parks within residential areas.

Chapter 16.64 of the City of Sacramento Municipal Code is the City's Quimby ordinance. It requires the dedication of neighborhood and community parkland for residential subdivisions of fifty (50) units or more. Payment of an in-lieu fee is required for smaller subdivisions or on a case-by-case basis on larger subdivisions. The City prefers the dedication of land whenever possible. The number of acres and/or dollar amount is calculated by either the appraised value of the land at the time of development, or by use of an average land value adopted by the City Council for each of the planning areas within which the development is located. Fees collected in lieu of land dedication are used for acquisition, improvement, and expansion of park, playground and recreational facilities or the development of public school grounds. The fee includes an additional 20% to cover the cost of public improvements. In lieu fees collected are spent within the planning area where they are collected.

The City also imposes a Park Development Impact Fee (PIF) on all new construction or additions for residential or business (retail, office or industrial) uses. The fee may be used to design or construct park facilities within the community plan area in which they are collected. The PIF rates were adopted by City Council to encourage infill in residential neighborhoods, Central City, and transit-oriented developments. Reduced infill rates within infill areas are applicable to developments of less than 20 residential units.

Additional parks within the project boundary should be identified with planned and future development, and the land should be dedicated by the developers whenever possible. Fees collected from development will be used as indicated above for neighborhood and community park development, enhancement, and maintenance.

4.3 Recommended Utility Infrastructure Improvements

Table 4-2 summarizes the utility recommendations included in Chapter 3. These improvements reflect the full development and in-fill opportunities within the Norwood area, to best accommodate the future needs of the residents. Some of the recommendations include providing further study to expand on specific requirements, such as the condition of the sewer system, in an effort to provide better direction to staff as they condition future tentative map submittals.

**Table 4-2
Utility Recommendations**

Utility	Purveyor	Recommendations
Potable Water	City	<ul style="list-style-type: none"> - Complete a water study for the Norwood area to identify adequate sizes and appurtenances - Install ~ 7,300 LF of water line in the primary streets for redundancy of service - Interconnect water service with at least 2 service zones for redundancy, if deemed necessary by study - Require a water service study with each tentative map submittal
Sanitary Sewer	City	<ul style="list-style-type: none"> - Complete the sewer master plan currently underway - Inspect and assess pipe/ manhole condition to determine if any repairs or replacement is necessary - Upsize lines as necessary to meet demand - Require a sanitary sewer study with each tentative map submittal
Storm Drainage	City	<ul style="list-style-type: none"> - Implement the recommendations from the Sump 157 Drainage Master Plan - Initiate a storm drainage master plan for Sump 158 Basin - Require a storm drainage study with each tentative map submittal - Require adequate storage capacity in roadways (e.g. build curb & gutter) - Require on-site detention facilities
Electrical / Street Lights	SMUD	<ul style="list-style-type: none"> - Install adequate street lighting - Convert overhead utilities to under ground when roads are improved
Tele-communications	AT&T	<ul style="list-style-type: none"> - Convert overhead utilities to under ground when roads are improved
Cable	Comcast	<ul style="list-style-type: none"> - Convert overhead utilities to under ground when roads are improved
Natural Gas	PG&E	<ul style="list-style-type: none"> - None

4.4 Implementation of Recommendations

The urgency to implement these recommendations depends greatly on the speed with which the internal development is occurring in the Norwood area. Generally, improvements will occur as development progresses. Additionally, many of the improvements can be included as conditions of approval for developments. Unfortunately, when placing the burden on parcel owners to make public improvements, non-uniform construction and gaps between the developments can result. As such, the City should closely monitor the design and construction of certain improvements, such as the looped potable water system and sidewalk improvements, to ensure consistency, reliability and availability, and uniformity.

To minimize inconsistency among the various improvements, and to ensure a comprehensive amount of contiguous improvements, the City should attempt to require the completion of several improvements along the same corridor. Recognizing that the City cannot determine which parcel owners will choose to move forward with development, the City can encourage owners adjacent to planned developments to consider making improvements to his frontage. Additionally, the City can facilitate cooperation among adjacent developers to create a more unified local and residential street pattern, identify shared opportunities such as jointly creating neighborhood parks, to share certain administrative costs, and minimize disruption to the local residents and businesses.

With these goals in mind, the City should consider methods to complete the following improvements within the next 5 to 7 years:

- Stripe the bicycle lanes on Norwood Avenue
- Improve Morey Avenue with wider roads, curb, gutter, sidewalks, storm drainage and street lighting to provide a safer environment to and from the Morey Avenue Early Childhood Development Center
- Add signage along Western Avenue indicating the area is under 24-hour surveillance and post the fines for illegal dumping
- Add signage and other traffic calming devices along Morrison Avenue to deter large truck traffic along this road and along Morey Avenue to reduce speeds
- Complete a study of the water system for the Norwood area to determine proper sizing of pipes, the necessity of pressure reducing or enhancing stations, and the feasibility of interconnecting the system among multiple pressure zones
- Work toward completing a looped water system, whether that is in the primary roads or within the developing parcels.

Other improvements may include focusing on the improvements for Morrison and Western Avenues, identifying more direct connectivity between Silver Eagle Road and Western Avenue, and completing the improvements along Silver Eagle Road. The other recommendations within this report should be implemented as appropriate.

4.5 Opinion of Probable Cost

Construction costs for street, park, and utility improvements are derived from several sources including manufacturer's retail prices, recent construction bid information on similar projects, cost estimating sources such as Engineering News Record Construction Cost Index (ENR-CCI) factors, and engineering experience. Means estimates and construction Blue Book values were also factored into the unit costs. The following sections establish the basis of costs used for estimating the improvements recommended in this study, and present the estimated costs. These costs may be borne by the developers, grant funding, residents via assessment districts, or the City.

4.5.1 Basis of Cost

Construction costs include all material, labor and equipment necessary to complete the project. Also included are soft costs associated with each project, including design, construction management, and City of Sacramento administrative costs. Table 4-3 shows the mark-up factors related to capital improvements, including a contingency for the unknown variables such as planning efforts, wide variations in design and construction management costs, supply costs, energy costs, and spikes in labor costs. City environmental and legal costs are not included in these cost estimates.

**Table 4-3
Capital Improvement Mark-Up Factors**

Administration Costs	5%
Design Costs	20%
Construction Management Costs	10%
Contingency	15%
TOTAL	50%

4.5.2 Circulation Infrastructure Cost Estimates

Table 4-4 shows the estimated costs to construct the recommended improvements as described in the sections above. The costs include street and utilities improvements. These costs are in 2007 dollars and must be inflated to reflect general increases in cost to the actual start date of construction. Many of these improvements will be conditioned on future development, either as part of each development's construction or as requirements for developers to contribute to an improvement fund, which the City will manage and use to construct the improvements. Appendix B shows the detailed cost estimate for each street.

**Table 4-4
Estimated Circulation Construction Costs by Street**

Street Name	Street Type	Construction Costs	Mark Up (50%)	Estimated Total Cost
Morrison Avenue	Residential	\$2,757,817	\$1,378,908	\$4,136,725
Morey Avenue	Residential	\$3,857,208	\$1,928,604	\$5,785,813
South Avenue	Residential	\$3,651,550	\$1,825,775	\$5,477,325
Silver Eagle Road	Minor Collector	\$1,969,650	\$984,825	\$2,954,475
Ford Road	Residential	\$1,791,533	\$895,767	\$2,687,300
Western Avenue	Modified Residential	\$3,457,000	\$1,728,500	\$5,185,500
	TOTALS	\$17,484,758	\$8,742,379	\$26,227,138

4.5.3 Utility Infrastructure Cost Estimates

Typically the utility improvements will accompany the roadway improvements. Costs for curb and gutter to control storm water flows on the street, the associated storm drain inlets and piping, and street lighting costs are included in the street improvements shown above. The costs associated with dry utility improvements, such as the electrical, telephone, and cable are funded by the respective utility and the expenses are recovered from monthly service use.

Improvements to the potable water system to complete a looped system within the area and improve redundancy are estimated to cost approximately \$1.6 million. A summary of the estimate by street is shown in Table 4-5 and Appendix C shows a full estimate. Similar to the street improvement costs, the costs for the water line improvements will be conditioned on future development, either as part of each development's construction or as requirements for developers to contribute to an improvement fund that the City will manage and use to construct the water line improvements.

**Table 4-5
Potable Water Line Cost Estimate**

Street Name	Construction Costs	Mark Up (50%)	Estimated Total Cost
Morey Avenue	\$167,020	\$83,510	\$250,530
South Avenue	\$381,920	\$190,960	\$572,880
Silver Eagle Road	\$246,700	\$123,350	\$370,050
Western Avenue	\$268,628	\$134,314	\$402,942
TOTALS	\$1,064,268	\$532,134	\$1,596,402

Additionally, the City should budget between \$45,000 and \$75,000 to complete a water service study for the Norwood area. This study, which should determine the necessary water line diameters, the need and locations for pressure reducing or booster stations, and the feasibility and need to interconnect the Norwood area water system among two or more water pressure zones, will provide guidance to staff as they condition tentative maps for the area.

Sanitary sewer improvements will occur with each development. No specific sewer improvements are recommended at this time. However, since the condition of the system is unknown, the City should undertake an inspection and assessment program to determine whether repair, rehabilitation, or replacement of certain pipe segments and manholes is necessary. On average, the inspection and assessment of one (1) mile of sewer pipe, including traffic control permitting and reporting, costs approximately \$18,000. To inspect and assess the approximately 25,000 feet (4.71 miles) of sewer pipelines in the Norwood area would cost approximately \$85,000. Knowing the location of deteriorated or defective pipelines will allow staff to condition appropriate sewer improvements for future developments.

Appendix A Community Meetings

Meeting 1

Agenda
Invitation
School Flyer
Summary

Meeting 2

Agenda
Invitation
School Flyer
Summary

Meeting 3

Agenda
Invitation
School Flyer
Summary



Norwood Area Community Meeting
Saturday, October 14, 2006
11:00 AM to 1:00 PM
Robertson Community Center

AGENDA

Please Sign-in

- I. Welcome / Purpose (5 min.)
- II. Meeting Overview / Introductions (5 min.)
- III. Circulation and Infrastructure Presentations (30 min.)
- IV. Question and Answer Period (15 min.)
- V. Closing Remarks / Next Steps (5 min.)

Staff will be available to discuss the project and collect your comments after the meeting.

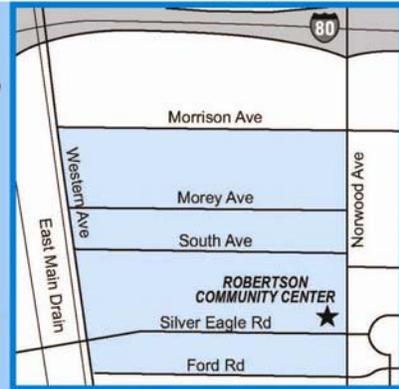
*This event is sponsored by the City of Sacramento's Long Range Planning Section.
If you have questions or need additional information, please contact Ms. Tara
Goddard at (916) 808-8332.*



The City of Sacramento is preparing a plan to make needed improvements to the *Oak Knoll*, *Johnson Heights* and *Strawberry Manor* neighborhoods - also known as the **Norwood** area (please refer to map). When complete, the plan will support livable communities, safe neighborhoods and offer a sense of pride for all residents.

The City wants to hear from residents, like you, who live in these areas so the improvements reflect what is most desired.

A series of three meetings will take place over the next six months to meet with community members about this plan and to hear input.



Join us for lunch as we talk about the neighborhood!



Is a nearby intersection unsafe?

• Do you want trash dumping to stop?

• Would you like to see sidewalks along your block?



**Your ideas are important
and we want to hear from you!**

The first meeting is scheduled for:

**Saturday, October 14, 2006
from 11 a.m. to 1 p.m.**



**at the Robertson Community Center
on Silver Eagle Road**

**Lunch will be provided, and
activities and prizes will be available for kids.
We hope to see you there!**



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Tara Goddard
City of Sacramento
Long Range Planning
915 I Street, 3rd Floor
Sacramento, CA 95814



JOIN US FOR LUNCH!

As we talk about your neighborhood

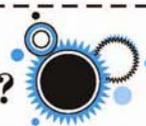


Postage
Required

Tara Goddard
City of Sacramento
Long Range Planning
915 I Street, 3rd Floor
Sacramento, CA 95814



Can't make the meeting but have ideas to share?



Please complete the form below and mail back to the City by October 21, 2006. We appreciate your time in doing so and please look for future notices about other upcoming meetings.

Name and address (optional) _____



For more information, please call Tara Goddard at (916) 808-8332.

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JOIN US FOR LUNCH!

As we talk about your neighborhood



Dear Parents,

The City of Sacramento invites you to an important community meeting to discuss improvements to your neighborhood.

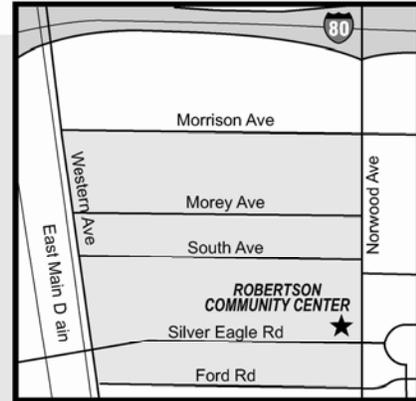


The City of Sacramento is preparing a plan to make needed improvements to the *Oak Knoll, Johnson Heights and Strawberry Manor* neighborhoods - also known as the **Norwood area** (please refer to map).

When complete, the plan will support livable communities, safe neighborhoods and offer a sense of pride for all residents.

The City wants to hear from residents, like you, who live in these areas so the improvements reflect what is most desired.

A series of three meetings will take place over the next six months to meet with community members about this plan and to hear input.



Is a nearby intersection unsafe?

- Do you want trash dumping to stop?
- Would you like to see sidewalks along your block?

Your ideas are important and we want to hear from you!

The first meeting is scheduled for:
Saturday, October 14, 2006
 from 11 a.m. to 1 p.m.
 at the Robertson Community Center
 on Silver Eagle Road



Lunch will be provided, and activities and prizes will be available for kids. We hope to see you there!

This program is not sponsored by the Del Paso Heights School District

For more information, please call Tara Goddard at (916) 808-8332.



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Memorandum

CITY OF SACRAMENTO NORWOOD COMMUNITY MEETING #1 SUMMARY

MEETING DATE: October 14, 2006

MEETING TIME: 11a.m. to 1 p.m.

MEETING LOCATION: Robertson Community Center (outdoors)
3525 Norwood Avenue
Sacramento, CA 95838

PRESENTERS: Sparky Harris, City of Sacramento
Tara Goddard, City of Sacramento
Councilmember Sandy Sheedy, City of Sacramento
Dean Gipson, PBS&J
David Fronczak, PBS&J

STAFF RESOURCES: City of Sacramento Parks staff
Glenn McPherson, Sandy Ledet & Rebecca Cole,
PBS&J

On Saturday, October 14, 2006, the City of Sacramento held the first of three community meetings to discuss improvements for portions of the Oak Knoll, Johnson Heights and Strawberry Manor neighborhoods, collectively described as the Norwood area. The purpose of this first meeting was to gather input from the community on desired improvements. Thirty-four residents signed in and attended this meeting. The City also received 12 comment cards with various comments. Below is a summary of all the comments.

COMMUNITY COMMENTS:

ZONING:

- There are business plans along Norwood, including the development of Long's Drugs.
- Development seems to be getting too close to the levee.
- Will residents be forced to develop land with future developments coming to our neighborhood?
- Zero lot lines – homes seem too close to property boundaries.
- How will eminent domain affect residents?

- I want quality land, not six homes on one lot. We need new streets and organized development. Where will children play?
- Development exists for 2.2 acres to have 27 homes and 5 acres to have 40+ homes. South Street offers no room for more than two vehicles to pass.
- There is too much trash dumping along Western.
- On Morrison, there are plans for an eight-home development. There is inconsistent building of homes on top of each other. During construction, the area is a mess. Contractors leave materials in the area and don't clean up after they are done for the day. It seems that construction stalls and there is no work for a long period of time. There are no sidewalks and there is open drainage.
- Is there a developed master plan? Is there a plan for zoning? High density brings more traffic.
- Zoning often gets changed without notification to residents. They change apartments to single family homes. Residents can't trim our own trees, yet developers come in and cut down Oaks. They don't mind paying the fine for this.
- What are the construction hours of new developments?
- What rights do (current) residents have with developers?
- What standards exist for developers to provide parks and greenways?
- We would like a public pool.
- We need park improvements.
- Light industrial use along Western Ave. does not seem consistent with the residential use of the area.

TRANSPORTATION

- We need more stop signs.
- Morrison has ingress and egress issues.
- Speeds along Western are dangerous for children walking to school.
- We need lighting along both Morey and South. It is dangerous for residents walking through the neighborhood in the evening. With no lighting or sidewalks, they are forced to walk along the shoulder of the street.
- Morrison needs well paved streets and sidewalks.
- We need a street light at Western and Morrison, as well as sidewalks.
- We need something done about excessive speeds along Western.
- Turning left from the center lane at Norwood and South is dangerous. There have been 40 accidents there.
- South Avenue is too narrow to handle traffic. Accidents occur too often and speeds are excessive. Animals and foot traffic are in danger.
- We need a stop light at Silver Eagle Road and Mable.
- Are there plans to pave Morey and South streets?
- Would like to limit truck traffic on Morrison.
- Pedestrian signals at some stop lights do not work properly.
- We need sidewalks, especially on Morey for students at the elementary school.
- We need another east/west connecting street so Silver Eagle is not the only one.
- We need traffic calming throughout the neighborhood.

- Backing out of driveways is dangerous with cars driving too fast down our streets.
- Are developers in agreement to make street modifications? Our neighborhood schools need major improvements.
- What about north/south street connections through the neighborhood?
- We need bicycle lane improvements. It's dangerous for bicyclists.
- Del Paso Nuevo developers put in modifications, why can't those in our neighborhood do the same?
- There are ingress and egress issues at Morrison and Norwood, especially regarding truck traffic to the industrial area just to the north.
- We need traffic lights west of Norwood, and at Morrison and Norwood.
- Who will pay for these improvements?
- We need signage (stop and yield) at South and Morey and at the end of Western.
- There are no speed limit signs and no enforcement. Can police presence be increased?
- Speeds along the levee/Western Ave. are dangerous and not enforced.
- There have been three child fatalities on Silver Eagle due to traffic speeds. It's difficult to slow down and turn into our own homes because traffic behind us is going so fast.
- Widening needs to occur along Western and Ford streets for busses. (Some residents indicated it would be closed.)
- Western creates competition between foot traffic and cars going too fast. Accidents are bound to happen.

STORM DRAINS

- How will development affect the levee? New homes will be an issue once the rainy season arrives.
- There is no drainage along South Ave. Residents have been told we are not to park in our own driveways unless we make improvements. Winter water will be an issue – it is every year.
- There is a storm issue along Morey and residents are left to pay. The City overcharges us. This has been going on for years!
- There are very few drainage ditches, especially along Morey.
- There is a lot of local flooding.
- Culverts are bent and clogged, and there is no flow.
- We need street cleaners.
- We need trash enforcement. Sometimes it sits out for a week, and if it rains it goes into the drainage system.
- The levee needs to be cleaned, especially along Norwood in Strawberry Manor. The last cleaning occurred in 1986.
- Do I have to tap into the storm drain system because of new development?

SANITARY SEWERS

- Does a north/south easement exist for a sewer line?
- Will septic users be penalized (with development)?

WATER

- There are only three or four fire hydrants in Strawberry Manor. Barden has none and Danville has maybe one. We need more.
- Fire service is reliable. (Police service is not.)
- We can smell and taste chlorine in the water.
- Will development force well users into the water system?

DRY UTILITIES

- Safety is compromised with no street lights. We need them at South, Western, Morrison, Silver Eagle and Mobley.

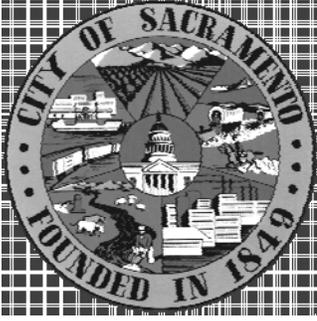
OTHER

- Will bonds pay for the improvements?
- We need more code enforcement (some residents disagreed over this statement).
- At the corner near Robertson Community Center we often hear loud music that rattle windows of nearby homes. They dump trash over the fence and leave a mess. Can the gate be closed?
- Police presence has decreased over the past two months.
- Hate crime graffiti exists and stays on fences.
- Police response time is very poor. Domestic disturbances are the main issue of poor response time. They often say, "Call back in 30 minutes if the situation is not resolved."
- Construction from development hit a tree and it now poses a safety risk because it could fall. How do we reach developers about things like this?
- When will the improvements we have talked about today take place? When will they be final?
- We need a neighborhood post office.
- Are your aerials out of date?
- Notification about your meetings needs improving. Some of us did not get the mailer.
- We would like the meeting in doors.
- Will any City Parks money benefit the Robertson Community Center?
- What is happening in Villa Nueva?
- Strawberry Manor residents requested to be included in the project boundary.

COMMENT CARD COMMENTS:

As received from residents as of October 24, 2006

- There is a great need for speed bumps on Ford Road. beginning at Western Avenue. and ending at Norwood Avenue.
- We need adequate police enforcement and daily patrols in Strawberry Manor.
- There is a serious need for speed bumps on Butterworth. Children are in danger due to speeding cars. Our van was recently hit by a car that fled the scene.
- We need street lights, sidewalks and regular trash pick up.
- The area has become overcrowded – it's more like an urban environment instead of the rural environment that people originally moved there for. In addition, the area has water and air problems.
- We need speed bumps on Ford Road.
- We need stop signs and speed bumps on Mabel Street Speeding cars have crashed into two houses. Code enforcement is needed for vehicles on the street. Illegal trash dumping needs to stop. We need more police patrol between 9 p.m. and 5 a.m., especially in Strawberry Manor where drug trafficking takes place on various street corners.
- Stop street racing. People are running stop signs at Norwood and Fairbanks, Silver Eagle and Mable Street, Ford Road and Mable Street, and at Mable Street and Fairbanks. It seems police are scared of individuals between 15 and 30 years of age. We need police presence.
- We need to stop the illegal trash dumping that occurs every day. There is no access to City water around the area of Morey Avenue. Prevent trains from blowing horns except in cases of emergencies. We need sidewalks, curbs, and gutters along Morey Avenue. We will not have street sweeping services unless those first exist.
- Since streets are named after activists, how did Louise Williams, an activist for 50 years, and her daughter, Anna Simms, get overlooked?
- Sidewalks are needed in Strawberry Manor. Bus covers are needed at bus stops on Norwood Ave. Tennis courts, working computers, building additions, and interior painting are needed at Robinson Community Center. We need weekly trash cleanup on Ford and Taylor. Our neighborhood needs a Boys and Girls Club.
- We only want city policy services. Disband grant police services. They should only handle grant school districts as per their job description.
- There are numerous car accidents at South and Norwood avenues. We need crosswalks and traffic lights. We need road bumps at South Avenue. between Norwood and Western because of speeding cars. We need a neighborhood clean up because of all the illegal dumping in the area.



Norwood Area Community Meeting
Saturday, December 9, 2006
11 a.m. to 1 p.m.
Robertson Community Center

AGENDA

Please Sign-in

- | | | |
|------|--|-----------|
| I. | Welcome/Purpose | (5 min.) |
| II. | Meeting Overview/Introductions | (5 min.) |
| III. | Recommendations Presentations | (45 min.) |
| IV. | Question and Answer Period | (30 min.) |
| V. | Closing Remarks/Next Steps/Final Meeting | (5 min.) |

Staff will be available to discuss the project and collect additional comments after the meeting.

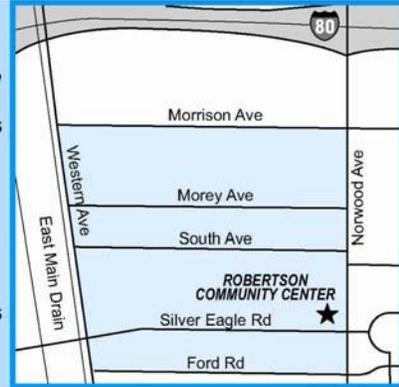
*This event is sponsored by the City of Sacramento's Long Range Planning Section.
If you have questions or need additional information, please contact Ms. Tara
Goddard at (916) 808-8332.*



The City of Sacramento is preparing a plan recommending long-term improvements to the *Oak Knoll*, *Johnson Heights* and *Strawberry Manor* neighborhoods - also known as the **Norwood** area (please refer to map). When complete, the plan will support livable communities, safe neighborhoods and offer a sense of pride for all residents.

At the first community meeting in October, the City heard from residents about improvements they want to see in their community. The City's consultants are drafting recommendations for the City using this feedback.

Please join us at this important meeting to learn what the recommendations are and offer any new input before the recommendations become final. Final recommendations will be presented at a meeting in early 2007.



Learn about proposed improvements to the Norwood community - *Your* community!

- Some improvements include:
- Speed reducing measures
 - New and improved street signage
 - Increased street lighting along various streets
 - New sidewalks, curbs and gutters
 - Improved water service

Your input in this process is important.
New ideas are welcome!



The second meeting is scheduled for:
Saturday, December 9, 2006
 from 11 a.m. to 1 p.m.
**at the Robertson Community Center
 Auditorium
 on Silver Eagle Road**

**Lunch will be provided.
 Activities will be available for kids.
 We hope to see you there!**



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Tara Goddard
 City of Sacramento
 Long Range Planning
 915 I Street, 3rd Floor
 Sacramento, CA 95814



JOIN US FOR LUNCH!

As we continue to talk about your neighborhood



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Tara Goddard
City of Sacramento
Long Range Planning
915 I Street, 3rd Floor
Sacramento, CA 95814



Can't make the meeting but have ideas to share?



Please complete the form below and mail back to the City by December 16, 2006. We appreciate your time in doing so. Please look for the future notice about our final meeting in early 2007.

Name and address (optional) _____



For more information, please call Tara Goddard at (916) 808-8332.



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JOIN US FOR LUNCH!

As we continue to talk about your neighborhood



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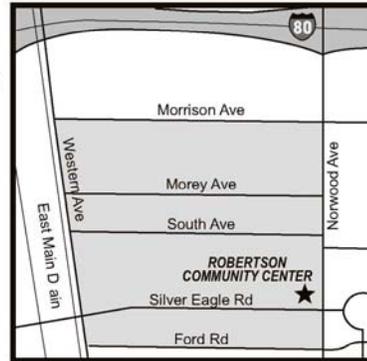
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New ideas are welcome!



The second meeting is scheduled for:
Saturday, December 9, 2006
 from 11 a.m. to 1 p.m.
 at the Robertson Community Center
 Auditorium
 on Silver Eagle Road

Lunch will be provided.
Activities will be available for kids.
We hope to see you there!

This program is not sponsored by the Del Paso Heights School District

For more information, please call Tara Goddard at (916) 808-8332.



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CITY OF SACRAMENTO NORWOOD COMMUNITY MEETING #2 SUMMARY

MEETING DATE: December 9, 2006

MEETING TIME: 11a.m. to 1 p.m.

MEETING LOCATION: Robertson Community Center Auditorium A
3525 Norwood Avenue
Sacramento, CA 95838

PRESENTERS: Tara Goddard, City of Sacramento
Councilmember Sandy Sheedy, City of Sacramento
Dean Gipson, PBS&J
David Fronczak, PBS&J

STAFF RESOURCES: Mary de Beauvieres, City of Sacramento
Sandy Ledet, PBS&J

On Saturday, December 9, 2006, the City of Sacramento held the second of three community meetings to discuss improvements for portions of the Oak Knoll, Johnson Heights and Strawberry Manor neighborhoods, collectively described as the Norwood area. The purpose of this second meeting was to present preliminary infrastructure improvement alternatives for the major roads and utilities in the area, then gather input from the community on these recommended improvements. Sixteen residents signed in and attended this meeting. Below is a summary of major items presented and a summary of the responses.

MEETING SUMMARY:

PBS&J presented and overview of possible improvements that included:

- widening roads
- building curb, gutter and sidewalks
- adding signage and striping
- adding bike lanes as identified in the City's overall bike path plan
- building potable water pipelines
- adding storm water detention facilities, and
- adding more street lighting to the area.

These improvements are suggested to address the community's concerns regarding excessive vehicular speeds, inadequate safety for pedestrians and bicyclists, and illegal trash dumping. Because funding is limited for this work, PBS&J suggested the following order of improvements:

- widen Morey, add curb, gutter, sidewalks and bike lanes to primarily benefit Morey Elementary School students
- require all-way stops at more intersections, particularly at new residential streets that feed into the primary roads
- add street lighting along Western avenue to discourage illegal dumping
- install potable water pipes to create a looped system that will provide service redundancy and reduce the possibility of a water outage.

COMMUNITY COMMENTS:

- Install more speed humps to control speed
- Will assessments be used to fund improvements?
- Provide more information on the 4 acre park requirements for new development and explain why these standards are not being used for our community?
- Confirm the right-of-way widths and locations and whether the owners own to centerline
- Many are concerned about building variances that allow improvements to occur very close (5') or closer (zero lot line) to property boundaries
- Problems with houses along zero lot lines
- Create ways to stop the large semi tractor/trailers from driving on and parking on Morrison Avenue
- We want more park areas – make the land developers contribute to the local parks
- Who pays for the trash clean up along the levee, particularly on the levee/railroad property?
- When will the suggested improvements occur? Schedule may depend on:
 - o Funding opportunities through the general plan
 - o Working with developers to fund part of the work
 - o Grant availability
- Install stop signs at new housing developments on Morey Avenue
- I'm assessed for curb and gutter, but there is none on my street – why?
- Replace flashing light on Mabel with a traffic signal
- Investigate deed issues
- Look into the 1964 grandfather law for property owner rights in the City of Sacramento
- Ask about divider wall along properties against existing houses/properties
- No school buses in Del Paso School district, causing all families with children to make trips to/from schools, thus increasing traffic on streets
- Not enough in and out roads for new neighborhoods (one-way in/out is not good – causes too much traffic congestion)



Community Meeting
for the
Norwood Area Circulation and Infrastructure Study

Saturday, February 3, 2007
11 a.m. to 1 p.m.
Robertson Community Center

AGENDA

Please Sign-in

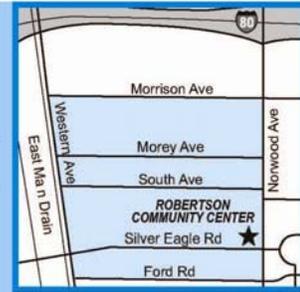
- I. Welcome/Purpose (5 min.)
- II. Meeting Overview/Introductions (5 min.)
- III. Circulation Infrastructure Presentation (20 min.)
- IV. Utility Improvements Presentation (20 min.)
- V. Question and Answer Period (20 min.)
- VI. Closing Remarks/Next Steps (5 min.)

Staff will be available to discuss the project and collect additional comments after the meeting.

This event is sponsored by the City of Sacramento's Transportation Planning Section. If you have questions or need additional information, please contact Ms. Tara Goddard at (916) 808-8332.



The City of Sacramento has been working closely with its consultant team to prepare a plan to identify needed improvements to the *Oak Knoll*, *Johnson Heights* and *Strawberry Manor* neighborhoods - also known as the **Norwood** area (please refer to map). The City has met with the community over the past four months to learn what improvements the residents desire most. Community input and close examination of the area by traffic and engineering experts have resulted in a complete plan that will support livable communities, safe neighborhoods, and offer a sense of pride for all residents.



Residents have provided valuable input during this project - and we thank you! Community feedback, combined with existing City data, formed the basis of a project design report drafted for the City of Sacramento that identifies and recommends specific improvements to the neighborhood roads, sidewalks, and utilities. Our third and final meeting will focus on the report as well as results of the circulation plan for pedestrians, bicycles, and vehicles. This meeting is your opportunity to provide feedback on the identified improvements and implementation schedule before the project design report is finalized and provided to the City for future implementation.

Join us for lunch to discuss the Norwood circulation and infrastructure plans

Future improvements to the community include:

- New sidewalks, curbs, and gutters
 - Wider roads
 - Better traffic movement
 - Reduced traffic speeds
 - An improved storm water system
 - Increased street lighting
- And more!

The third and final meeting is scheduled for:

Saturday, February 3, 2007
from 11 a.m. to 1 p.m.



at the
Robertson Community Center Auditorium
on Silver Eagle Road

Lunch and kid activities will be provided
We hope to see you at our final meeting!



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City of Sacramento
Long Range Planning
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to discuss the Norwood circulation and infrastructure plans

JOIN US FOR LUNCH!



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Tara Goddard
City of Sacramento
Long Range Planning
915 I Street, 3rd Floor
Sacramento, CA 95814



Can't make the meeting?



Final public comments are still welcome. Please complete the form below and mail back to the City by February 9, 2007. We appreciate your time in doing so and thank you for all your input throughout this process.

Name and address (optional) _____



For more information, please call Tara Goddard at (916) 808-8332.

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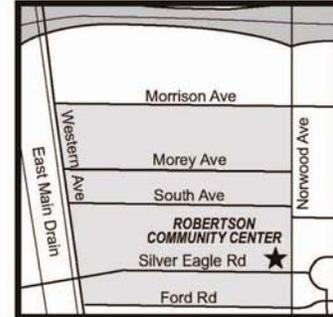
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Saturday, February 3, 2007
 from 11 a.m. to 1 p.m.
 at the
Robertson Community Center Auditorium
 on Silver Eagle Road

Lunch and kid activities will be provided
We hope to see you at our final meeting!

Your input in this process is important!

This program is not sponsored by the Del Paso Heights School District

For more information, please call Tara Goddard at (916) 808-8332.

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CITY OF SACRAMENTO NORWOOD COMMUNITY MEETING #3 SUMMARY

MEETING DATE: February 3, 2007

MEETING TIME: 11 a.m. to 1 p.m.

MEETING LOCATION: Robertson Community Center Auditorium A
3525 Norwood Avenue
Sacramento, CA 95838

PRESENTERS: Tara Goddard, City of Sacramento
Sparky Harris, City of Sacramento
Councilmember Sandy Sheedy, City of Sacramento
Dean Gipson, PBS&J

STAFF RESOURCES: Sandy Ledet, PBS&J
Glenn McPherson, PBS&J
Bill Ziebron, PBS&J

On Saturday, February 3rd, 2007, the City of Sacramento held the final of its three community meetings to discuss improvements for portions of the Oak Knoll, Johnson Heights and Strawberry Manor neighborhoods, collectively described as the Norwood area. The purpose of this third meeting was to present preliminary infrastructure improvement alternatives for the major roads and utilities in the area, then gather input from the community on these recommended improvements. Sixteen residents signed in and attended this meeting. Below is a summary of major items presented and a summary of the responses.

MEETING SUMMARY:

PBS&J presented an overview of possible improvements that included:

- Develop Morrison, Morey, South, and Western Avenues as collector streets with a curb-to-curb width of 36 feet, including sidewalks, street lights and storm drains
- Encourage and develop a north-south minor collector road that connects Morrison Avenue to Silver Eagle Road

- Deviate from the City's street design standard by eliminating the landscaping area between the curb and the sidewalk, to match the majority of the existing sidewalk in the neighborhood
- Add signage and striping, particularly for the on-street bike paths along Norwood Avenue
- Add on-street bike lanes as identified in the City's overall bike path plan
- Building potable water pipelines to create a looped systems for reliability and fire support
- Do not allow any more parcels to directly access the primary streets via driveways in the area, and
- Promote internal residential circulation that includes short cul-de-sacs and circle (looped) road to promote safety, privacy and design diversity.

These improvements are suggested to address the community's concerns regarding excessive vehicular speeds, inadequate safety for pedestrians and bicyclists, and illegal trash dumping. Because funding is limited for this work, PBS&J suggested the following:

- Improvements along Morey Avenue should have priority for the safety of students, parents and educators of the Morey Elementary School
- Add street lighting along Western avenue to discourage illegal dumping, and
- Install potable water pipes to create a looped system that will provide service redundancy and reduce the possibility of a water outage.

COMMUNITY COMMENTS:

The attendees of the meeting had the following comments:

Circulation and Roadway Infrastructure:

- Put in all utilities at once and have a mechanism to get reimbursed by future development
- Silver Eagle Road surveillance camera has made a huge difference with dumping
- Concern about "bee-hive" dense development (will take comment to land use planners)
- Problem with speeding – need to address this
- Is Norwood Area in same level zone as Natomas community? Why should residents here have to pay same amount [for flood protection]?
- What about using the North-South easement for sewer line as the north-south road?
- There is public support for a connection from Western to Silver Eagle via South instead of Ford Road
 - Can an on-ramp to Silver Eagle be made?
 - Should explore more direct access to Silver Eagle from Western
- Widening Silver Eagle – what is the ROW?

- ANSWER: based on available data, consultant considers ROW is sufficient for planned improvements

Utilities and Infrastructure:

- Sewer lines not actually there in places? [e.g. an attendee stated that certain sewer lines are not installed regardless of what sewer maps indicate]
- What is going into 12' utility easement behind curb?
 - ANSWER: typically the electrical, telecommunications, and cable are the utilities that are built in the 12' public utilities easement behind the sidewalk; the water, sewer, storm drainage and natural gas utilities are typically built under the street pavement

Open Q&A:

- Add stop signs on Morey coming out of developments and into developments
 - Three-way stop signs at development intersections
 - Use Safe Routes money to fund enforcement, sidewalks, safety features
- Randall Heights development on South Avenue – adjacent neighbors raised concerns about drainage issue
- SMUD Storm Drain Fee: what does it cover? [attendees who pay the fee are curious of the fee since there is no storm drain in front of their homes]
- Put a right turn lane on Silver Eagle Road (eastbound) onto Mabel

Appendix B
Costs for Roads – Table of Estimates

Norwood Area Circulation and Infrastructure Improvements Report - Roadway Improvement Costs Summary Table

Project: Traffic Circulation Estimate
 City of Sacramento

Calculated By: LCP
 Checked By: JC

Date: 04/11/07
 Job No. 491216.03

Engineer's Opinion of Probable Cost

Item No.	Cost Description	Unit Cost	Ford	Silver Eagle	South	Morey	Morrison	Western	Total
1	Mobilization/Demobilization	varies	\$ 128,000	\$ 42,000	\$ 138,000	\$ 145,000	\$ 149,000	\$ 129,600	\$ 731,600
2	Traffic Control	varies	\$ 16,000	\$ 5,250	\$ 17,250	\$ 18,125	\$ 18,625	\$ 16,200	\$ 91,450
3	Stormwater Pollution Control/BMPs (2% Maximum)	varies	\$ 35,200	\$ 38,700	\$ 71,600	\$ 75,700	\$ 54,100	\$ 67,800	\$ 343,100
4	Cleaning and Grubbing	\$ 25,000	\$ 25,000	\$ 25,000	\$ 25,000	\$ 25,000	\$ 25,000	\$ 25,000	\$ 150,000
5	PCC Curb and Gutter	\$ 65	\$ 208,000	\$ 136,500	\$ 448,500	\$ 471,250	\$ 320,125	\$ 421,200	\$ 2,005,575
6	PCC Sidewalk	\$ 16	\$ 256,000	\$ 168,000	\$ 552,000	\$ 580,000	\$ 394,000	\$ 518,400	\$ 2,468,400
7	Pedestrian Ramps	\$ 3,600	\$ 10,800	\$ 7,200	\$ 7,200	\$ 28,800	\$ 32,400	\$ 32,400	\$ 118,800
8	Cold Plane (2-ft width)	\$ 1	\$ 3,200	\$ 2,100	\$ 6,900	\$ 7,250	\$ 4,925	\$ 6,480	\$ 30,855
9	2.5" AC Pavement	\$ 18	\$ 777,600	\$ 1,001,700	\$ 1,676,700	\$ 1,761,750	\$ 1,196,775	\$ 1,574,640	\$ 7,989,165
10	10.5" Crushed Class II Aggregate Base	\$ 12	\$ 286,000	\$ 495,600	\$ 552,000	\$ 580,000	\$ 394,000	\$ 518,400	\$ 2,796,000
11	Street Lights (staggered at 150 feet)	\$ 6,500	\$ 69,333	\$ 45,500	\$ 149,500	\$ 157,083	\$ 161,417	\$ 140,400	\$ 723,233
12	Traffic Striping, Pavement Markings, and Pavement Markers	varies	\$ 6,400	\$ 2,100	\$ 6,900	\$ 7,250	\$ 7,450	\$ 6,480	\$ 36,580
	Subtotal		\$ 1,791,533	\$ 1,969,650	\$ 3,651,550	\$ 3,857,208	\$ 2,757,817	\$ 3,457,000	\$ 17,484,758
	50% Markup		\$ 895,767	\$ 984,825	\$ 1,825,775	\$ 1,928,604	\$ 1,378,908	\$ 1,728,500	\$ 8,742,379
	Total		\$ 2,687,300	\$ 2,954,475	\$ 5,477,325	\$ 5,785,813	\$ 4,136,725	\$ 5,185,500	\$ 26,227,138

Item No.	Quantity Description	Units	Ford	Silver Eagle	South	Morey	Morrison	Western	Total
1	Mobilization/Demobilization	LS	1	1	1	1	1	1	1
2	Traffic Control	LS	1	1	1	1	1	1	1
3	Stormwater Pollution Control/BMPs (2% Maximum)	LS	1	1	1	1	1	1	1
4	Cleaning and Grubbing	LS	1	1	1	1	1	1	1
5	PCC Curb and Gutter	LF	3,200	2,100	6,900	7,250	4,925	6,480	30,855
6	PCC Sidewalk	SF	16,000	10,500	34,500	36,250	24,625	32,400	154,275
7	Pedestrian Ramps	EA	3	2	2	8	9	9	33
8	Cold Plane (2-ft width)	SF	3,200	2,100	6,900	7,250	4,925	6,480	30,855
9	2.5" AC Pavement	SF	43,200	55,650	93,150	97,875	66,488	87,480	443,843
10	10.5" Crushed Class II Aggregate Base	SF	21,333	41,300	46,000	48,333	32,833	43,200	233,000
11	Street Lights (staggered at 150 feet)	EA	11	7	23	24	25	22	111
12	Traffic Striping, Pavement Markings, and Pavement Markers	LS	1	1	1	1	1	1	1

Notes:
 1) Volume of aggregate base (AB) calculated by assuming existing 18-foot wide base course will be utilized.
 2) Assumed 2.5-inch AC over 10.5-inch AB for all proposed street sections.
 3) Assumed proposed street section shall be installed to match existing.
 4) Bid prices for Stormwater Pollution Control/BMPs are based on a percentage of the sum of all materials, equipment and labor.
 5) Costs for Ford Road and part of Morrison Avenue are for half width improvements.

Appendix C
Costs for Water – Table of Estimates

Norwood Area Circulation and Infrastructure Study - Water Line Cost Summary

Project: Water Installation Estimate	Calculated By: LCP	Date: 01/30/07	
City of Sacramento	Checked By: JC	Job No. 491216.03	

Engineer's Opinion of Probable Cost

Item No	Cost Description	Unit Cost	Silver Eagle	South	Morey	Western	Total
1	Mobilization/Demobilization (6% Maximum)		\$ 13,600	\$ 21,100	\$ 9,200	\$ 14,800	\$ 58,700
2	Traffic Control (1% Maximum)		\$ 2,300	\$ 3,600	\$ 1,600	\$ 2,500	\$ 10,000
3	Stormwater Pollution Control/BMPs (2% Maximum)		\$ 4,600	\$ 7,100	\$ 3,100	\$ 5,000	\$ 19,800
4	Clearing and Grubbing		\$ 10,200	\$ 15,720	\$ 6,720	\$ 10,968	\$ 43,608
5	Install 8-inch PVC Water Main	\$ 100.00	\$ 170,000	\$ 262,000	\$ 112,000	\$ 182,800	\$ 726,800
6	Trench Restoration	\$ 20.00	\$ 34,000	\$ 52,400	\$ 22,400	\$ 36,560	\$ 145,360
7	Install Fire Hydrants	\$ 4,000.00	\$ 12,000	\$ 20,000	\$ 12,000	\$ 16,000	\$ 60,000
	Subtotal		\$ 246,700	\$ 381,920	\$ 167,020	\$ 268,628	\$ 1,064,268
	50% Markup		\$ 123,350	\$ 190,960	\$ 83,510	\$ 134,314	\$ 532,134
	Total		\$ 370,050	\$ 572,880	\$ 250,530	\$ 402,942	\$ 1,596,402

Item No	Quantity Description	Unit	Silver Eagle	South	Morey	Western	Total
1	Mobilization/Demobilization (6% Maximum)	LS	1	1	1	1	4
2	Traffic Control (1% Maximum)	LS	1	1	1	1	4
3	Stormwater Pollution Control/BMPs (2% Maximum)	LS	1	1	1	1	4
4	Clearing and Grubbing	LS	1	1	1	1	4
5	Install 8-inch PVC Water Main	LF	1,700	2,620	1,120	1,828	7,268
6	Trench Restoration	LF	1,700	2,620	1,120	1,828	7,268
7	Install Fire Hydrants	EA	3	5	3	4	15

Notes:

- 1) Contract Unit Price for installation of 8-inch PVC Water Main includes all valves, fittings and appurtenances.
- 2) Bid prices for Mobilization/Demobilization, Traffic Control and Stormwater Pollution Control/BMPs are based on a percentage of the sum of all materials, equipment and labor.

**Appendix D
Reference List**

REFERENCE LIST

- City of Sacramento Department of Parks and Recreation, Park Planning, Design and Development Standards:
http://www.cityofsacramento.org/parksandrecreation/ppdd/park_category.htm (Last accessed March 21, 2007)
- City of Sacramento Developer Information Packet: Parks and Recreation Private Development Requirements,
(Revised October 05, 2006)
- City of Sacramento Development Services – Fee Details, verified current on April 11, 2005
- City of Sacramento General Plan Update – Technical Background Report* (June 2005)
- City of Sacramento Infill Strategy* (May 2002)
- City of Sacramento Parks and Recreation Master Plan 2005-2010* (December 2004)
- City of Sacramento Pedestrian Master Plan* (September 2006)
- City of Sacramento Pedestrian Safety Guidelines* (January 2003)
- City of Sacramento Procedure Manuals, Section 11: Storm Drainage Design Standard* (October 2000)
- City of Sacramento Procedure Manuals, Section 15: Street Design Standards* (May 2004)
- City of Sacramento Speed Hump Program Guidelines* (Amended January 2004)
- City of Sacramento Traffic Calming Guidelines* (2002)
- City of Sacramento Transportation Programming Guide - 2006* (December 2005)
- North Sacramento Community Plan* (March 1984)
- Norwood Area Infill Circulation & Infrastructure Plan - Infrastructure Assessment and Recommendations:
Technical Memorandum* (November 2006)
- Norwood Area Infill Circulation & Infrastructure Plan - Interim Circulation Patterns: Technical Memorandum*
(November 2006)
- Norwood Area Infill Circulation & Infrastructure Project - Circulation Plan: Technical Memorandum* (January 2007)
- Oak Knoll /Johnson Heights Preliminary Infrastructure Study and Land Use Plan* (July 1996)
- Resolution No. 2004-118: Adopted by the Sacramento City Council on Date of February 24, 2004
- Sacramento Municipal Codes: <http://www.qcode.us/codes/sacramento/> (Last accessed April 11, 2007)
- Sacramento Regional Transit District – Draft Short Range Transit Plan; as amended to cover the period from
FY 2000 – FY 2010* (February 2007)
- Tentative Maps for the Norwood Area (approved and pending): Provided by the City of Sacramento
- The 2010 Sacramento City/County Bikeway Master Plan – Volume 1 of 2* (Adopted by Sacramento County on
November 23, 1993, City of Sacramento on April 11, 1995)