8.12 TRAFFIC AND TRANSPORTATION

This section presents information on traffic and transportation as required by the siting regulations of the California Energy Commission. The potential effects on traffic and transportation resulting from construction and operation of the proposed Russell City Energy Center (RCEC) and Advanced Wastewater Treatment (AWT) Plant were analyzed and are documented within this section. It contains information on the existing transportation system along with a discussion of the potential effects of the project. Section 8.12.1 discusses the existing environmental setting; Section 8.12.2 discusses the environmental effects of construction and subsequent operation; Section 8.12.3 evaluates potential cumulative impacts to traffic and transportation due to other simultaneous projects; Section 8.12.4 includes proposed mitigation measures during construction and operation; Section 8.12.5 presents applicable laws, ordinances, regulations, and standards (LORS); Section 8.12.6 references agency contacts; and Section 8.12.7 contains references.

8.12.1 Affected Environment

8.12.1.1 Regional

The RCEC and AWT plant project site is located in the East Bay area of the San Francisco region in California. The East Bay area is served by an extensive transportation system, including major freeway, highway, airport and rail facilities. Figure 8.12-1 illustrates the regional transportation setting. The RCEC and AWT plant site is located within the City of Hayward, in Alameda County. The primary transportation corridors in or near Hayward consist of Interstate 880 (the Nimitz Freeway) and State Route 92. I-880 runs north south from Oakland to San Jose. Freeways, such as I-880, are described within the General Plan of Hayward, as "designed with limited access to serve regional through traffic." In general, freeways are under the jurisdiction of the State Department of Transportation (Caltrans); local roadways, collectors, and arterials generally fall under the jurisdiction of the City of Hayward. The Metropolitan Transportation Commission is responsible for regional transportation planning and coordination between all levels of government responsible for transportation development and maintenance. Near the City of Hayward, the I-880 has four lanes in each direction, which include a High Occupancy Vehicle (HOV) lane. State Route 92 runs east-west and has two lanes in each direction in the vicinity of the site. Improvements are currently underway, or planned for this freeway; for example, an additional lane expansion at the existing tollbooths situated west of the site area along State Route 92 is currently underway.

8.12.1.2 Local

The local transportation network near the site is illustrated in Figure 8.12-2. In general, the RCEC site can be accessed from Interstate 880 via State Route 92 westbound and then along a variety of local access routes. The most likely (shortest) access routes are as follows:

- From State Route 92 westbound exit Clawiter Road northbound. Turn left onto Enterprise Avenue (an east-west trending street) go 0.9 miles, past Whitesell Street, and left onto the site.
- Exit State Route 92 on Industrial Boulevard. Heading northbound, make a left onto Depot Road, left onto Clawiter Road (southbound), right onto Enterprise Avenue and left onto the site.
- From State Route 92 eastbound to Eden Landing Road (Clawiter Road) northbound over the freeway, left onto Enterprise Avenue (an east-west trending street) for 0.9 miles and left, after Whitesell Street, onto the site.

The option to use the Industrial Boulevard exit may be beneficial, since it is a four-lane road, whereas Clawiter Road is only a two-lane road. Likewise, when turning left onto Depot Road, it is also a four-lane road.

The amount of time traveled on Clawiter Road is extremely short using either option. The site's proximity to the freeways allows for minimal surface street travel time.

The only local roadways near the site that may experience direct project impact (due to construction of the natural gas pipeline) are Enterprise Avenue and Clawiter Road. Section 8.6, Land Use, describes the pipeline route, while construction practices to ensure safe, efficient and reliable access are described later in this section.

According to the Hayward General Plan (City of Hayward, 1998), State Route 92 is identified as a congested roadway with an E/F Level of Service (LOS) rating. The LOS refers to the amount of congestion at a given roadway segment or intersection (Table 8.12-1). The Hayward General Plan also includes recommended improvements for State Route 92, some of which are either complete or currently underway, such as lane widening between I-880 and the Hayward-San Mateo Bridge. Even with those improvements, however, the General Plan states that there may be congestion along State Route 92 in its 2010 forecast.

Table 8.12-2 lists the several intersections in the vicinity of the RCEC project that the City of Hayward may consider for improvements, since they are classified as LOS "E"or below. The key intersections are shown in Figure 8.12-3. Both the east and west Clawiter Road exits are planned to be upgraded by the City of Hayward. For each intersection, 1996 and projected 2010 LOS are presented; 2010 estimates are based on current (unimproved) intersections. The effects of the planned improvements are unknown. One major improvement that will take place is the signalization of the Clawiter intersection with State Route 92. This will improve access to the project site.

8.12.1.3 Other Transportation Issues and Plans

This section describes other traffic and transportation-related issues and plans important for the subsequent analysis of potential project impacts. One major improvement that will take place this year is the signalization of the Clawiter intersection with state Route 92. This will improve access to the project site dramatically.

Passenger Vehicle/Truck Percentages

Due to the close proximity of the site to interstate freeways and state highways, as well as the overall small number of construction vehicles expected, no significant impacts to existing traffic ratios between passenger vehicles and trucks is anticipated. The City of Hayward estimates that truck traffic on surface streets near the project site represents 12 percent of all daily vehicle traffic.

Weight/Load Restrictions

The Hayward General Plan, Transportation Element, does not specifically detail size and weight/load limits for any roadways in the city. Therefore, all applicable regulations are found in California Vehicle Code.

- The gross weight imposed upon the highway by the wheels on any axle of a vehicle shall not exceed 20,000 pounds and the gross weight upon any one wheel, or wheels, supporting one end of an axle, and resting upon the roadway, shall not exceed 10,500 pounds;

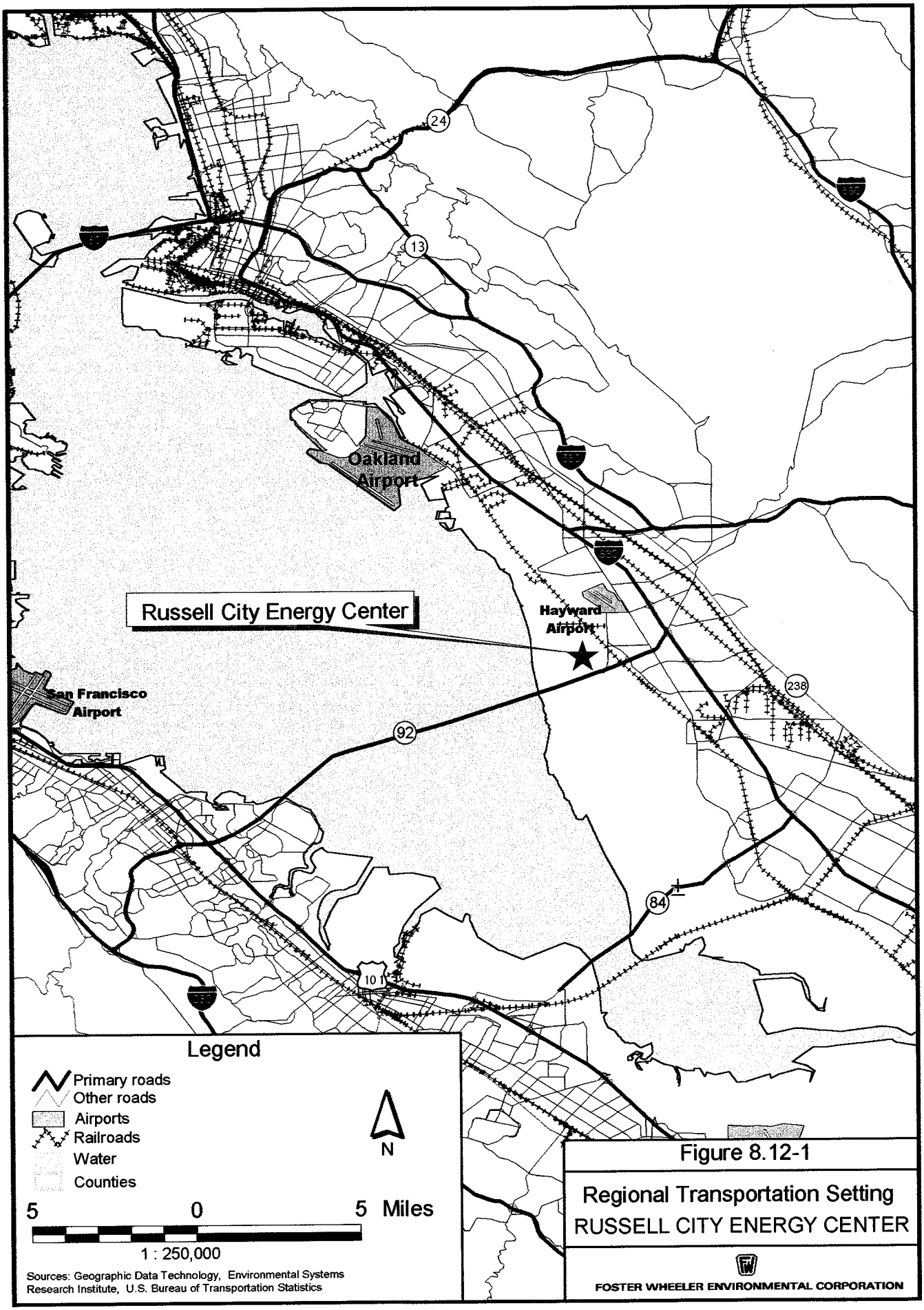


Figure 8.12-1

Regional Transportation Setting
RUSSELL CITY ENERGY CENTER

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Russell City Energy Center AFC

May 2001

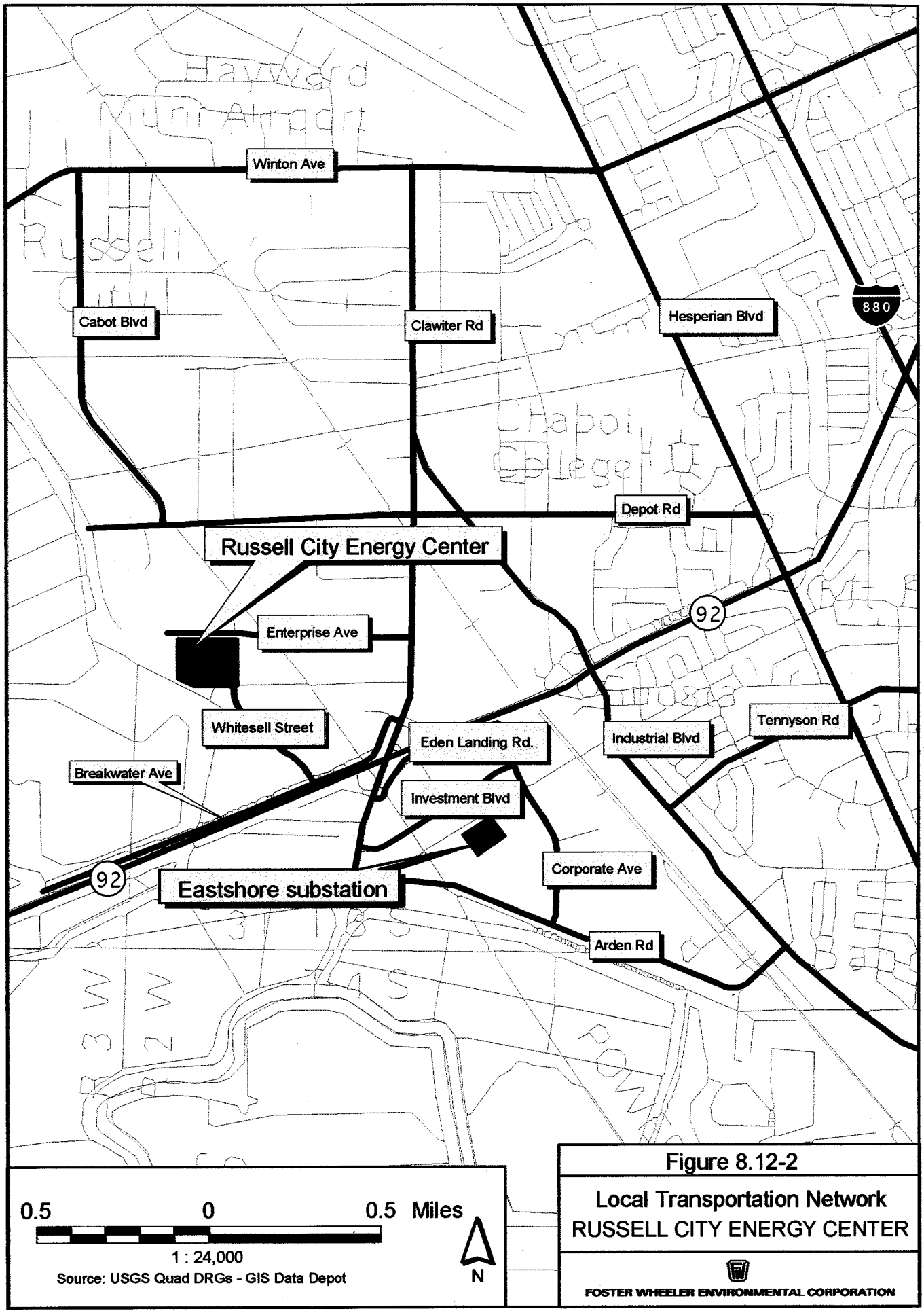


Figure 8.12-2

Local Transportation Network
RUSSELL CITY ENERGY CENTER

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Russell City Energy Center AFC

May 2001

Table 8.12-1. Summary of levels of service for intersections.

Level of Service	Type of Flow	Delay	Maneuverability	Volume/Capacity V/C Ratio	Average Stop Delay/Vehicle (sec)
A	Stable Flow	Very slight or no delay. If signalized, conditions are such that no approach phase is fully utilized by traffic and no vehicle waits longer than one red indication.	Turning movements are easily made, and nearly all drivers find freedom of operation.	0.00–0.60	Less than 5.0
B	Stable Flow	Slight delay. If signalized, an occasional approach phase is fully utilized.	Vehicle platoons are formed. Many drivers begin to feel somewhat restricted within groups of vehicles.	0.61–0.70	5.1 to 15.0
C	Stable Flow	Acceptable delay. If signalized, a few drivers arriving at the end of a queue may occasionally have to wait through one signal cycle.	Back-ups may develop behind turning vehicles. Most drivers feel somewhat restricted.	0.71–0.80	15.1 to 25.0
D	Approaching Unstable Flow	Tolerable delay. Delays may be substantial during short periods, but excessive back-ups do not occur.	Maneuverability is severely limited during short periods due to temporary back-ups.	0.81–0.90	25.1 to 40.0
E	Unstable Flow	Intolerable delay. Delay may be considerable (up to several signal cycles).	There are typically long queues of vehicles waiting upstream of the intersection.	0.91–1.00	40.1 to 60.0
F	Forced	Excessive delay.	Jammed conditions. Back-ups from other locations restrict or prevent movement. Volumes may vary widely, depending principally on the downstream back-up conditions.	Varies	Greater than 60.0

Table 8.12-2. Intersections with planned improvements[1].

Map Key No.	Intersection	1996 Delay (sec.)	1996 LOS	2010[2] Delay (sec.)	2010[2] LOS
5	Northbound-880 Ramp @ A Street	27	D	32	D
6	Southbound-880 Ramp @ A Street	31	D	35	D
7	Hesperian Boulevard @ A Street	136	F	98	E
17	Hesperian Boulevard @ Eastbound-SR92 Ramp	15	C	19	C
18	Hesperian Boulevard @ Westbound-SR92 Ramp	5	A	6	B
19	Industrial Boulevard @ Eastbound-SR92 Ramp	16	C	15	B
20	Industrial Boulevard @ Westbound-SR92 Ramp	14	B	13	B
21	Clawiter Road @ Eastbound-SR92 Ramp	1000	F	n/a	n/a
22	Clawiter Road @ Westbound-SR92 Ramp	321	F	n/a	n/a
24	Harder Rd. @ Santa Clara/Jackson	34	D	32	D
25	Santa Clara Street @ Winton Avenue	20	C	21	C
26	Hesperian Boulevard @ Winton Avenue	36	D	39	D

[1]Source: City of Hayward Circulation Element, 1998
[2]2010 estimates are based on current (unimproved) intersections
n/a – not available

- The maximum wheel load is the lesser of the following: (a) the load limit established by the tire manufacturer, or (b) a load of 620 pounds per lateral inch of tire width, as determined by the manufacturer's rated tire width.
- The gross weight imposed upon the highway by the wheels on any one axle of a vehicle shall not exceed 18,000 pounds and the gross weight upon any one wheel, or wheels, supporting one end of an axle and resting upon the roadway, shall not exceed 9,500 pounds, except that the gross weight imposed upon the highway by the wheels on any front steering axle of a motor vehicle shall not exceed 12,500 pounds; maximum allowable gross combination weight is 80,000 pounds (State of California Vehicle Code, Section 35550-35559).
- The maximum allowable vehicle height is 14 feet (State of California Vehicle Code, Section 35250-35252).
- The maximum allowable vehicle width is 102 inches (State of California Vehicle Code, Section 35100-35111).
- Maximum allowable length for single vehicle is 40 feet.
- Maximum allowable length for combination of vehicles is 65 feet.
- Maximum allowable length for combination of vehicles consisting of a truck tractor and two trailers is 75 feet, provided each individual trailer length does not exceed 28 feet 6 inches (State of California Vehicle Code, Section 35400-35414).

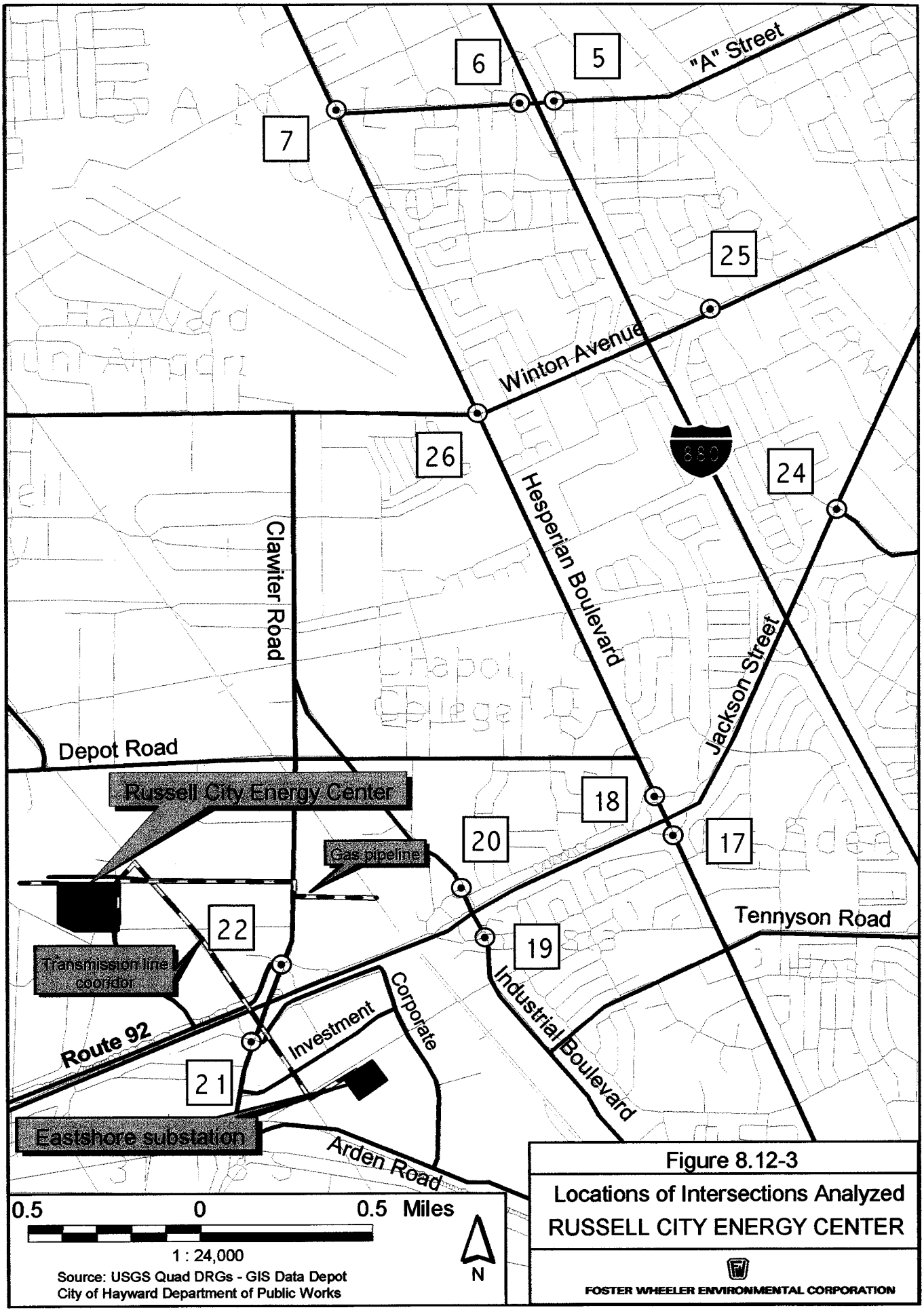


Figure 8.12-3

Locations of Intersections Analyzed

RUSSELL CITY ENERGY CENTER

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Russell City Energy Center AFC

May 2001

As noted in the Vehicle Code, these provisions would not apply if the city permitted the operation and transport of vehicles and loads on city roadways in excess of the maximum gross limits specified in the Vehicle Code (State of California Vehicle Code, Section 35780-35796).

Public Safety

There are no road features or characteristics in the project vicinity that would affect public safety nor are there any substandard bridges along the potential access routes. In addition, there are no city roadways that are subject to "normal" weather-related closures such as localized flooding or fog.

Truck Routes

The City of Hayward General Plan addresses truck routes within their General Plan by their policy to "evaluate and enforce a system of designated truck routes." The strategies to implement this system are to; (1) encourage trucks to use designated routes rather than local streets in the Downtown and other neighborhoods; and to prohibit overnight and other specified truck parking activities in residential areas (City of Hayward 1998).

All major routes leading to the RCEC and AWT plant site are suitable for truck travel. The average daily traffic volumes (ADT) on selected routes throughout Hayward are shown on Figure 8.12-4. As mentioned previously, the City of Hayward estimates that truck traffic on surface streets near the project site represents 12 percent of all daily vehicle traffic.

Hazardous Materials

The City of Hayward General Plan does not address hazardous materials transportation permits or routes. Calpine/Bechtel will obtain appropriate permits required by the State of California. Those permits are discussed in the environmental consequences section (8.12.2). The City of Hayward requests that when travelling with hazardous materials, the most direct route to the desired site should be used.

Public Transportation

The City of Hayward and the surrounding area has an extensive public transportation system in place, consisting of an integrated air, bus, rail, and bike network. Both the existing transit network and the proposed transit improvements are shown on Figure 8.12-5 (in pocket).

A nearby general aviation airport, in the City of Hayward, and three international airports in San Jose, Oakland, and San Francisco, provide air service in the region.

Public transit service is provided by the Bay Area Rapid Transit (BART) and the Alameda County (AC) Transit system. There are two BART lines (Richmond-Fremont and Bay City-Dublin/Pleasanton) with three stations (Downtown, South Hayward, and Castro Valley). AC Transit provides service throughout the East Bay as well as express service across the Bay Bridge to San Francisco. Hayward is also served by Amtrak's Capital Corridor route, which provides intercity rail passenger service between Sacramento and San Jose. For people who cannot use conventional fixed-route transit, specialized services or paratransit are available within the East Bay area. East Bay Paratransit is working to achieve service to such riders in a service territory that extends a minimum of ¾ mile outward from a transit station or bus route. Paratransit services require advance reservation (City of Hayward 1998). The City of Hayward provides a backup "safety net" service when East Bay Paratransit is unable to provide service.

The City of Hayward adopted an updated Bicycle Master Plan in early 1997. This plan proposed a network of bicycle facilities as shown in Figure 8.12-5, including bike paths, lanes and routes. The plan also sets priorities for implementation and funding of the various proposals (City of Hayward 1998). In

addition, the Bay Trail exist as a bicycle trail across State Route 92 on the Clawiter overpass, then runs west on Breakwater to the Shoreline Interpretive Center. At this point, it becomes a combined bicycle-hiking trail. The Bay Trail, upon completion, will encircle the San Francisco and San Pablo Bays with a continuous network of bicycle and hiking trails (ABAG 1999/00). There is a planned new crossing for bicycles and Bay Trail users planned for construction in the next two years to the west of Clariwater.

Specific parking issues are generally addressed through the normal project review and approval process. The City of Hayward's policy provides for on-site, off-street parking sufficient to serve anticipated demands of proposed projects, although the City is evaluating that policy with respect to certain types of projects located in areas close to public transportation (City of Hayward 1998).

Traffic Projections/Plans

Hayward's General Plan provides Link LOS projections for the year 2010 (Table 8.12-2). Tables 8.12-3 and 8.12-4 list the average daily traffic numbers for selected key highway and roadway intersections near the project. The classification and roadway design capacities of selected roadways that will be used to access the RCEC and AWT plant site are shown in Table 8.12-5. When reviewing the *Federal Transportation Improvement Plan (FTIP),* the *State Transportation Improvement Plan (STIP)* and the *Regional Transportation Improvement Plan (RTIP),* there were no projects Alameda County area that affected the RCEC project (Caltrans 1999).

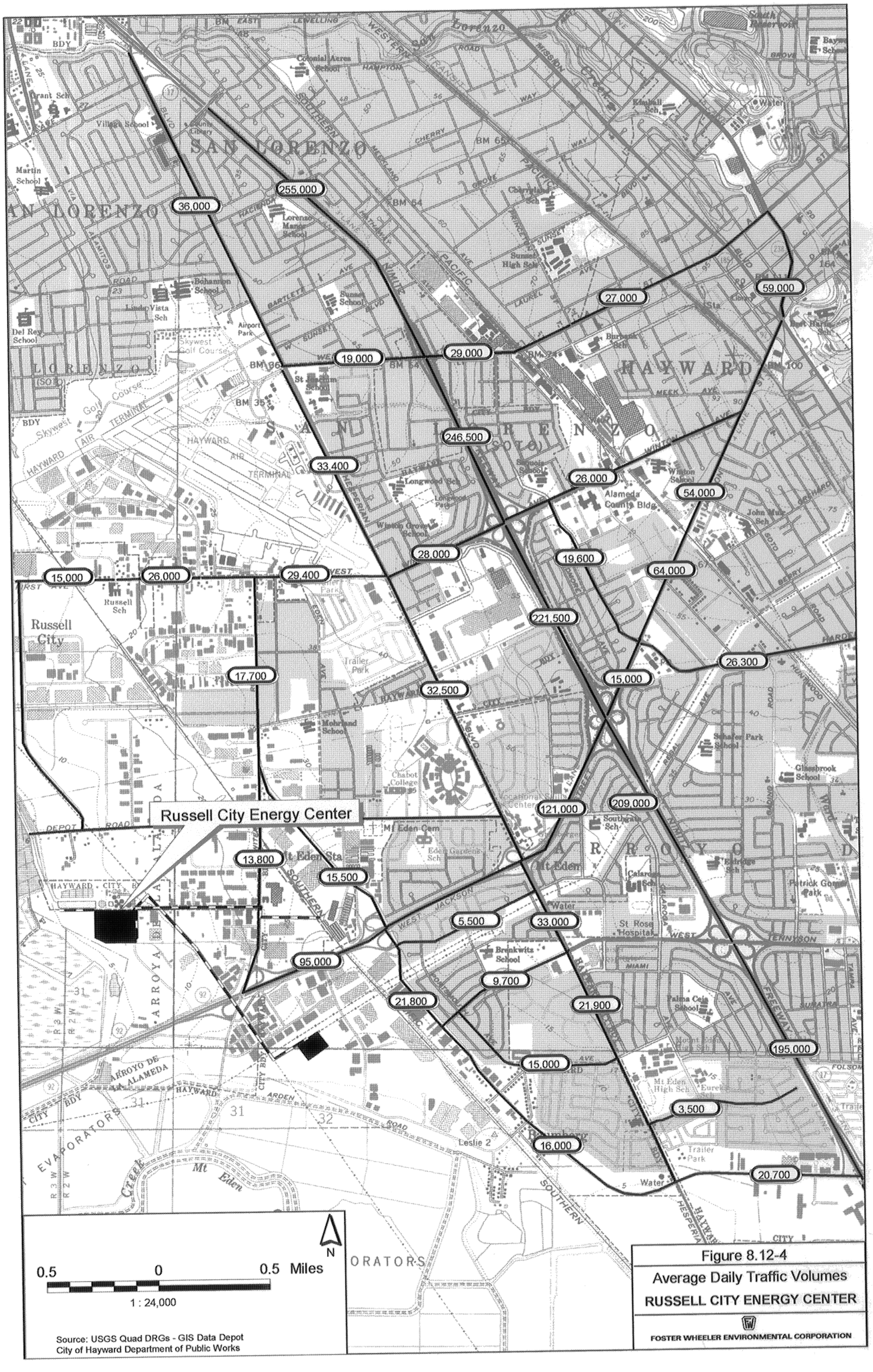
One project planned of the AWT immediate project area, however, is the City of Hayward's planned widening and extension of Whitesell Street through to connect with Cabot Boulevard to the north, and new interchange to State Route 92. This project will improve north-south through access to the Hayward Industrial corridor.

8.12.2 Environmental Consequences

8.12.2.1 Significance Criteria

Criteria used in determining whether project-related traffic impacts are significant are consistent with standard industry practice and California Code of Regulations Title 14, §15065. A project will have a significant effect on traffic and transportation if it will:

- Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system
- Exceed, either individually or cumulatively, a level of standard service established by the county Congestion Management Agency for designated roads or highways
- Result in a change in traffic patterns, including an increase in traffic levels or a change in location that results in substantial safety risks
- Substantially increase hazards due to a design feature or incompatible uses
- Result in inadequate emergency access
- Result in inadequate parking capacity
- Conflict with adopted policies, plans, or programs supporting alternative transportation.


Russell City Energy Center
36,000
255,000
19,000
29,000
27,000
59,000
246,500
33,400
26,000
54,000
28,000
19,600
64,000
15,000
26,000
29,400
221,500
17,700
32,500
26,300
15,000
121,000
209,000
13,800
15,500
5,500
33,000
95,000
9,700
21,800
21,900
195,000
15,000
3,500
16,000
20,700
0.5 0 0.5 Miles
1 : 24,000
N
Source: USGS Quad DRGs - GIS Data Depot
City of Hayward Department of Public Works
Figure 8.12-4
Average Daily Traffic Volumes
RUSSELL CITY ENERGY CENTER
FOSTER WHEELER ENVIRONMENTAL CORPORATION

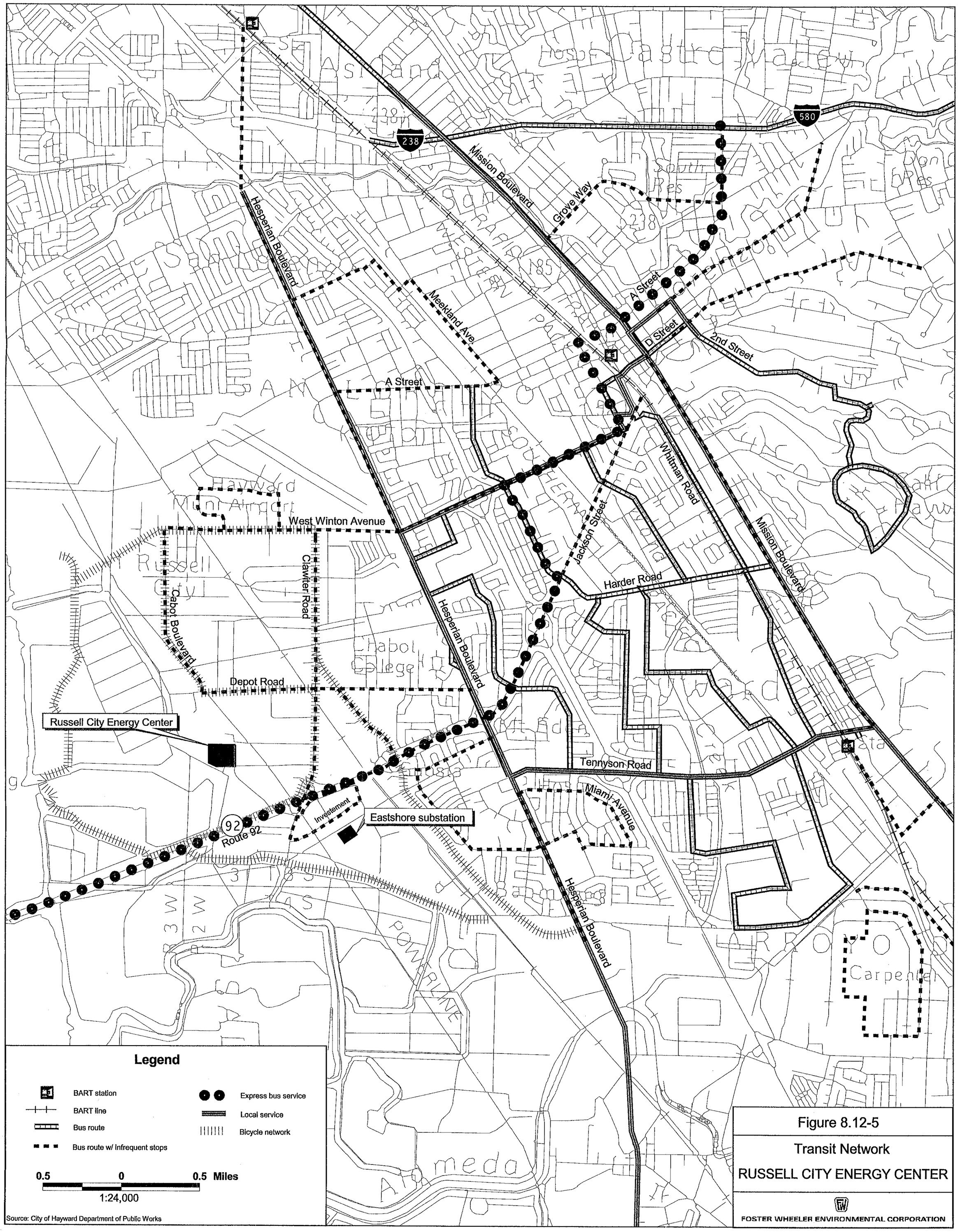


Figure 8.12-5

Transit Network

RUSSELL CITY ENERGY CENTER

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Table 8.12-3. Existing traffic characteristics in the project area for selected highway intersections.

	(S/W)			Eastbound (N/E)		
Route	Westbound Peak Hr	Peak Month	AADT	Peak Hr	Peak Month	AADT
SR92 @ Clawiter	7,100	89,000	85,000	7,800	97,000	93,000
SR92 @ Industrial	7,800	97,000	93,000	7,600	94,000	90,000
SR92 @ Hesperian	7,600	94,000	90,000	9,000	111,000	107,000
SR92 @ I-880	9,000	111,000	107,000	5,600	68,000	66,000

Source: Caltrans 1999

Table 8.12-4. Existing traffic characteristics in the project area for selected local roadway segments.

Street Location (Direction)	AM Peak Hr	PM Peak Hour	ADT
Clawiter Road, south of Depot Road (Northbound)	228	821	6,411
Clawiter Road, south of Depot (Southbound)	1,191	460	7,404
Subtotal			**13,800**
Industrial Blvd., south of Depot Road (Northbound)	754	612	9,532
Industrial Blvd., south of Depot Road (Southbound)	432	568	5,927
Subtotal			**15,500**
Industrial Blvd., south of SR 92 westbound ramp (Northbound)	1,351	762	11,630
Industrial Blvd., south of SR 92 westbound ramp (Southbound)	693	956	10,189
Subtotal			**21,800**

Source: City of Hayward, Engineering-Transportation Division 2001.

Table 8.12-5. Road classification and design capacity.

Route	Classification	Design Capacity (ADT)	Design Speed (miles per hour)
I-880	Freeway	>40,000	65
Route 92	Freeway	>40,000	65
Industrial Blvd.	Major Arterial	25,000-40,000	50
Winton Avenue	Major Arterial	25,000-40,000	50
Depot Road	Minor Arterial	10,000-25,000	40
Clawiter Road	Minor Arterial	10,000-25,000	40
Enterprise Avenue	Cul-de-sac	<1,000	35

Source: Transportation Research Board, 1980.

8.12.2.2 Level of Service Analysis Methodology

To assess the potential of the project-related traffic to impact local traffic congestion, the number of project-related trips through each intersection and the intersection LOS were estimated for conditions before project construction, during construction, and during project operation. The trip estimating methodology is based on the "Critical Movement Analysis Planning Method" described in Transportation Research Circular No. 212, (Transportation Research Board, 1980). This document is a general discussion of intersection operations that is used to define the overall LOS at a signalized intersection, given existing traffic volumes and projected project-related traffic. The Planning Method calculates a "sum of critical volumes" for the critical traffic control phases of an intersection (phases for which there might be significant delay or obstruction), and a corresponding LOS. The critical volume is the volume of traffic that will cause a significant conflict with opposing traffic. This occurs where left-turning traffic obstructs through traffic at an intersection. The critical volume for an intersection as a whole is calculated as the number of vehicles turning left plus the number of through vehicles at a given intersection, for each flow direction possible at that intersection. For this analysis, the City of Hayward provided information about the various combinations of signal phases (such as left-turn permissive, left-turn protected, etc.) for each key signalized intersection in the project area, and the current traffic flows in each direction at these intersections by hourly peak (from February 2000 data collected by the City). The raw data is included as Appendix 8.12-A. Project-related impacts (e.g., LOS impacts) were not evaluated by roadway segment because ADT data was not available for several key roadways (such as Enterprise Avenue).

The impact analysis assumes "average or better" conditions of geometry and traffic (i.e., vehicle headways, lane widths, truck percentages, effects of parking and pedestrians, etc.). After observing the project site and based on discussions with the City of Hayward, the project area's geometry and traffic were deemed "average." The procedure does not explicitly deal with signal timing and does not necessarily relate to the amount of vehicle delay. The procedure assumes a random arrival of vehicles on all approaches (rather than the vehicle platoons that are usually created by coordinated signal systems).

In cases where signal-protected left-turn phases are not provided at the intersection (in other words, a permissive left turn intersection), the "filtering" left-turn capacity for permissive left-turn movements during the green signal phase is calculated as follows:

$$\text{Capacity} = (1200 - Vo) \times G/C$$

Where:

Capacity	=	filtering left-turn capacity in vehicles per hour (vph) for permissive left-turn movements during the green light
Vo	=	volume (vph) of opposing traffic, including through and right turning vehicles
G/C	=	proportion of light cycle during which the left turns and the opposing traffic have a green light (G = green time, C = total cycle time).

On single-lane approaches, estimates of the critical volumes and protected/permissive phasing are sometimes problematic due to the variable permissive left-turn capacity, and the sometimes-varying lane use during a cycle.

On multi-lane approaches with permissive left-turn phasing, through and right-turn vehicles generally tend to shift to the right lane(s) to avoid being blocked by same-direction left-turn vehicles that are waiting for gaps in the opposing traffic stream. This shift is accounted for in the methodology by a factor that adjusts the proportion of vehicles blocked or stopped at the intersection.

At narrow, single-lane approaches, however, one or a few left-turn vehicles may block the entire approach. Thus, the critical volume for a single-lane approach would depend on the width of the approach, the presence and location of on-street parking, the length of the green, the opposing traffic volume, and the proportion of left-turn vehicles in the traffic stream. For this analysis, it was assumed that all intersections with a single-lane approach would be wide enough to allow right-hand turns at the same time as left-hand turns.

The lowest critical volume (best LOS) for a single-lane approach is calculated as the highest combination of the through and right-turn volumes summed with the opposing left-turn volume. The highest critical volume (worst LOS) for a single-lane approach is calculated as the total of the approach volumes for both approaches. Separate right-turn phases are not considered in the critical volume calculation since right-turn movements in exclusive right turn-lanes are seldom a critical movement (especially where right turns on red are allowed).

The guidelines used to identify LOS and volume/capacity (V/C) ratio based on the sums of intersection critical volumes are shown in Table 8.12-6. Table 8.12-6 shows critical volume thresholds for each LOS, A through F (the volume below which a given intersection remains at a given LOS). To define the level of service of an intersection with two-phase control, for example, given actual hourly traffic counts for the daily peak period of travel, one would add the left-turn volume to the opposing direction's through volume for all applicable travel directions at that intersection (for example, east-west, west-east, north-south, south-north). If the resulting sum of critical volumes were less than 900 cars, the LOS would be A. If a project were to add a volume of traffic to an intersection that would increase this sum of critical volumes to more than 900 cars, it would cause a change in LOS from A to B.

For this analysis, the traffic generated by the project in the study area during construction and operation was assigned to the surrounding street system for a hypothetical return commute. The resulting trip numbers were then added to the existing, critical volumes (based on City of Hayward's traffic data from February 2000) for each key intersection and compared with the LOS thresholds listed in Table 8.12-6.

Table 8.12-6. Critical intersection threshold volumes volume to capacity ratios by level of service.

Level of Service	Two-phase control	Three-phase control	Four or more phases	Typical V/C ratio
A	900	855	825	0.00-0.60
B	1050	1000	965	0.61-0.70
C	1200	1140	1100	0.71-0.80
D	1350	1275	1225	0.81-0.90
E	1500	1425	1375	0.91-1.00
F	N/A	N/A	N/A	Varies

Source Transportation Research Circular 212 (Transportation Research Board 1980).

The key analysis assumptions were as follows:

- Ten percent of trips to the project are carpool trips
- The normal construction workday begins at 7:00 a.m. and ends at 3:30 p.m.
- Sixteen percent of construction traffic arrives during the peak period

The daily peak traffic hour can vary by intersection, but at the most important intersection in this analysis, Enterprise Avenue and Clawiter Road, it is 7:00 to 8:30 a.m. To be conservative, however, this analysis assumes that 16 percent of construction traffic arrives during the peak period. This number was chosen as an estimate of the highest number of peak-hour trips that the project might generate. It represents the highest percentage of peak-hour traffic as a proportion of average daily traffic for any intersection in Hayward. Peak-hour traffic for most intersections in the project area is generally closer to 10 percent of average daily traffic.

Based on an analysis of the local grid system and historical traffic data, it was assumed that traffic coming out of the project site in the afternoon and heading east on Enterprise Avenue would flow to Clawiter Road, where 80 percent would turn south (right) in order to access State Route 92 and disperse in all directions via this multi-lane freeway. There are few residential areas that would be more accessible to Enterprise and Clawiter by turning left (north) on Clawiter than via State Route 92. It is also fair to assume that much of the construction workforce may arrive from outside the immediate area and will thus want to access State Route 92 to disperse through the freeway system. The remaining 20 percent of the traffic approaching Clawiter would disperse north onto Clawiter and, from there, to other roadways in the Industrial Corridor and the Mount Eden or adjacent neighborhoods. Traffic dispersion assumptions are given in Appendix 8.12-A.

Construction Phase Impacts

RCEC Plant Site

Access to the RCEC plant for construction activities will be from separate improved entrance roads extending south from Enterprise Avenue. Most of the RCEC site will be paved to provide internal access to all project facilities and on-site buildings. Locked/electric gates will control access into the facilities. Vehicular traffic into and out of the site will be limited as much as practical to daylight hours. There will be adequate internal circulation and parking. Due to the nature of the construction, along with the limited size of the site, additional areas will need to be leased for vehicle parking and/or laydown of materials during the construction period. Alternative sites for laydown and parking are located on Depot Road, just north of the RCEC, across Whitesell Street to the east of the RCEC, and on vacant land surrounding the PG&E Eastshore Substation.

Construction of the proposed facility will take place from the summer of 2002 to the spring of 2004, for a total duration of 18 to 21 months. It is anticipated that the on-site construction workforce required to build the RCEC will be drawn from the Bay area regional labor pool, with most workers coming from Alameda County. The average construction workforce will be approximately 277 persons, with a peak construction workforce of 485 persons (see Table 8.10-5 in the Socioeconomics section). According to the Metropolitan Transportation Commission, approximately 30 percent of cars have more than one occupant during commute time. For construction workers arriving from a wide variety of locations, a more reasonable assumption would be that 10 percent of the workforce may carpool. Using this figure, an average of 211 round-trip commutes per day for the 21-month construction period is expected. Peak construction traffic would result in 399 round trip commutes per day (443 peak workers minus 10 percent [44] = 399). The construction phase trip generation summary is found in Table 8.12-7. This analysis includes construction of the RCEC and AWT plants.

Table 8.12-7. Construction phase trip generation, daily traffic and peak hour.

	Vehicle daily round-trips		Vehicle total daily traffic (one-way)		PCE[1] daily peak-hour trips[4]	
Traffic Source	**Average**	**Peak[2]**	**Average**	**Peak[2]**	**Average**	**Peak[2]**
Worker trips[3]	277	485	554	970	89	155
Delivery trucks	10	25	20	50	1	3
Total	287	510	574	1020	90	158

[1] A passenger car equivalent (PCE) factor of 2.0 was applied to delivery trucks and heavy trucks.
[2] "Peak" refers to scheduled peak months of construction activity (months 11-16, especially month 15).
[3] Assumes 10% of workers carpool (1.1 persons per vehicle).
[4] Assumes 16% of workers and 10% of deliveries arrive or depart during peak traffic hour.

In the trip estimation, each truck counts the same as two cars because of their size and effect on traffic congestion. Therefore, in the peak month of construction, the project would generate a total of 848 one-way trips (including trips to and from the work site), compared with 448 on average during construction month. The peak-hour traffic for both the average and peak construction months is then calculated by assuming that 16 percent of cars and 10 percent of trucks for delivery arrive or depart during the peak traffic hour.

Table 8.12-8 lists the background peak traffic, construction-related traffic (existing plus project), and operation phase traffic (existing plus project) from the RCEC project at each key intersection analyzed. Traffic project construction and operation was added to existing traffic and distributed to the local and regional street and highway system by estimate (see assumptions below) and in Appendix 8.12-A. The resulting traffic volumes were added to the existing critical volumes for each intersection to determine whether or not the project could cause a change in the existing LOS and, hence, a significant adverse impact.

State Route 92, Clawiter Road, Enterprise Avenue, Industrial Avenue, and Depot Road are the primary roadways that will be used for travel to and from the project work site. Enterprise Avenue will experience the greatest volume of construction traffic, since it is the primary access route. The estimated additional traffic volumes (construction and operation) on each street from the RCEC construction traffic are shown in Figure 8.12-6. These estimates, and the estimates of traffic flowing through the various intersections, were derived based on the following general assumptions:

- Eight percent of construction traffic originates on the San Francisco Peninsula via State Route 92
- Thirty-five percent of the construction traffic originates from the north via I-880
- Thirty-one percent of the construction traffic originates from the south via I-880
- Twenty-two percent of the construction traffic originates east of I-880 and arrives via Route 92
- Four percent of the traffic is from the immediate local area (Hayward)
- Drivers generally choose the shortest distance to freeway access, though they may select alternate routes.

Projected LOS impacts during construction for selected roadway intersections are summarized in Table 8.12-9. No LOS classifications will change as a result of the RCEC construction or operation.

Russell City Energy Center AFC

May 2001

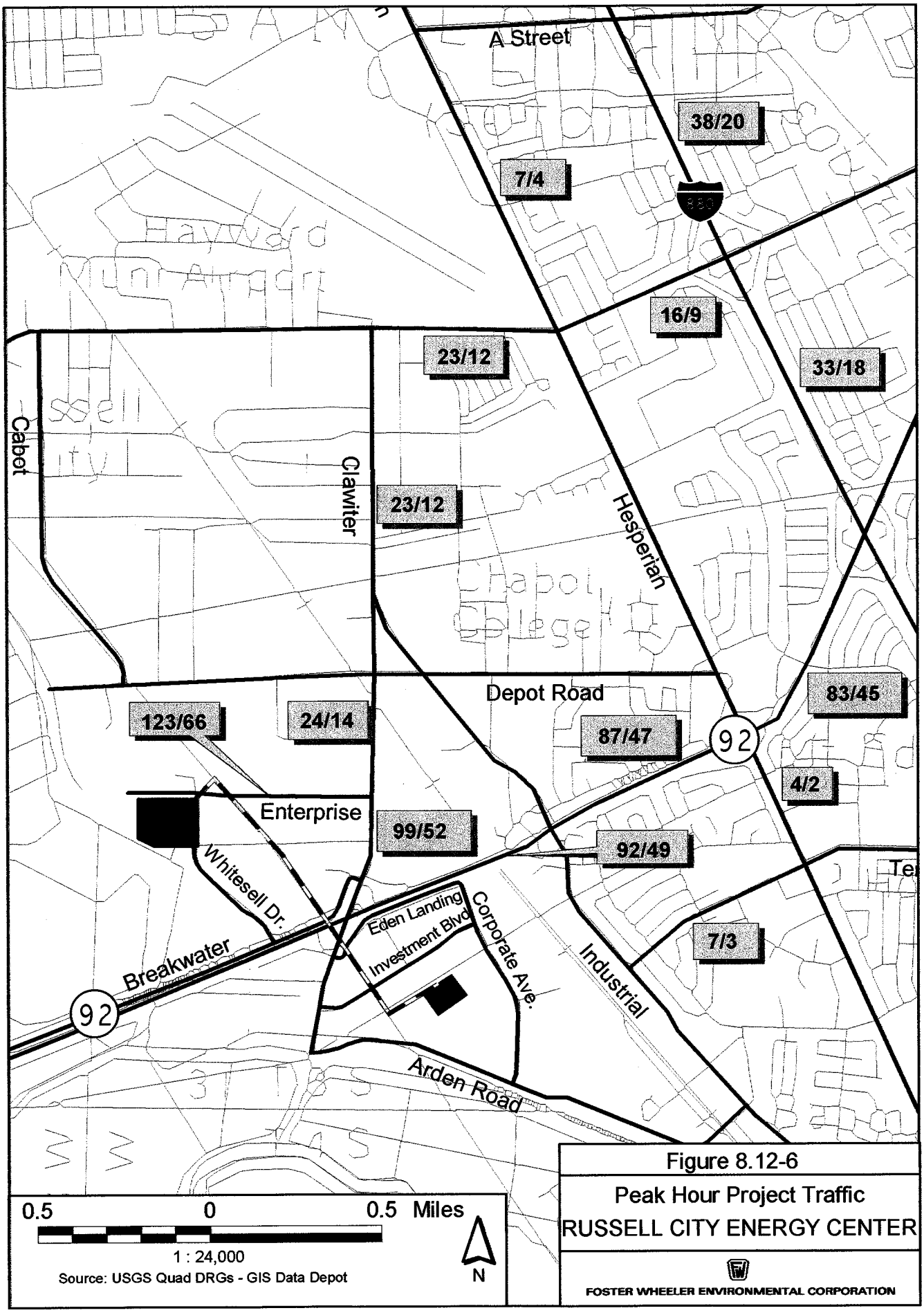


Figure 8.12-6

Peak Hour Project Traffic

RUSSELL CITY ENERGY CENTER

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Russell City Energy Center AFC

May 2001

Table 8.12-8. Existing peak hourly traffic compared with peak RCEC construction and operation traffic at key intersections.

	Eastbound			Westbound			Northbound			Southbound		
	Left	Thro	Right	Left	Thro	Right	Left	Thro	Right	Left	Thro	Right
Enterprise Avenue (E-W) and Clawiter Road (N-S—Two phases—Evening peak*												
Existing conditions	165	-	126	12	6	15	33	620	8	4	470	25
Existing + peak construction	197	-	252	12	6	15	33	620	8	4	470	25
Existing + peak operation	183	-	198	12	6	15	33	620	8	4	470	25
Enterprise Avenue (E-W) and Clawiter Road (N-S)—Three phases—Morning peak												
Existing conditions	45	1	33	9	-	4	52	343	12	5	753	177
Existing + peak construction	45	1	33	9	-	4	178	343	12	5	753	209
Existing + peak operation	45	1	33	9	-	4	124	343	12	5	753	195
Depot Road (E-W) and Clawiter Road (N-S)—Four phases—Evening peak												
Existing conditions	246	531	43	38	148	7	40	426	220	18	113	79
Existing + peak construction	246	531	43	38	148	7	40	455	223	18	113	79
Existing + peak operation	246	531	43	38	148	7	40	442	222	18	113	79
Depot Road (E-W) and Industrial Boulevard (N-S)—Four phases—Evening peak												
Existing conditions	22	323	470	32	32	17	135	289	70	46	537	7
Existing + peak construction	22	323	473	32	32	17	135	289	70	46	537	7
Existing + peak operation	22	323	47 2	32	32	17	135	289	70	46	537	7
Industrial Boulevard (E-W) and Clawiter Road (N-S)—Four phases—Morning peak												
Existing conditions	141	-	3	-	-	-	32	438	-	-	317	-
Existing + peak construction	141	-	3	-	-	-	32	467	-	-	317	-
Existing + peak operation	141	-	3	-	-	-	32	454	-	-	317	-
Industrial Boulevard (N-S) and State Route 92—Four phases—Morning peak												
Existing conditions	132	5	68	77	28	9	501	873	128	2	407	92
Existing + peak construction	132	8	68	77	28	9	501	873	128	2	407	98
Existing + peak operation	132	7	68	77	28	9	501	873	128	2	407	95

*Worst-case peak traffic is used in this analysis. This is morning (am) traffic for some intersections, evening (pm) for others. Both morning and evening are included for Enterprise and Clawiter, because morning traffic to the project will turn left on to Enterprise, causing greater potential for delay than evening traffic, which will turn right from Enterprise to Clawiter.

Table 8.12-9. Construction and operation phase LOS for selected roadway intersections.

	Existing		Construction Phase		Operation Phase	
Intersection	Total Peak In/Out Vehicle Trips at Intersection	Current LOS	Total Peak In/Out Vehicle Trips at Intersection	LOS	Total Peak In/Out Vehicle Trips at Intersection	LOS
Industrial @ Clawiter (am)	1862	B	1920	B	1894	B
Enterprise @ Clawiter (am)	2886	A	3174	A	3043	A
Enterprise @ Clawiter (pm)	2968	A	3284	A	3034	A
SR-92 @ Clawiter (am)	--	F	--	F	--	B
Depot @ Clawiter (pm)	3818	C	3887	C	3854	C
Depot @ Industrial (pm)	3960	C	3966	C	3964	C
Industrial @ SR 92 (am)	4644	C	4662	C	4654	C

*Note: Current LOS is based on intersection delay rather than critical v/c ratio.

Though actual traffic counts were not available for one of the key intersections, State Route 92 at Clawiter, this intersection is at LOS "F," and the project would not make it significantly worse. Signalization and other improvements are planned for this intersection for this year. For the other intersections, the project's effect on the volume to capacity ratio is very small and not enough to cause a decrease in LOS. Further from the key intersection of Enterprise and Clawiter, the project's effect is barely perceptible in the volume/capacity ratio.

Increased transportation due to the RCEC construction will include deliveries of plant equipment and construction materials by truck, such as concrete, steel, and lumber. Truck deliveries will occur between 7:00 a.m. and 4:30 p.m. on weekdays. In total, approximately 4,000 truck deliveries of materials and supplies are expected between summer 2002 and spring 2004, an average of about 10 deliveries per weekday. At various times during peak construction, the number of daily deliveries will increase to as many as 50 per day. This will not significantly affect the traffic/truck mix along state highways, but it may increase the ratio of trucks to passenger vehicles on city streets. The percentage breakdown of truck deliveries by load type is presented below:

- Major equipment (components of the heat recovery steam generator, combustion turbine generator and steam turbine generator) (18%)
- Mechanical equipment (4%)
- Electrical equipment and material (7%)
- Piping, supports, and valves (10%)
- Concrete and reinforcing steel (29%)
- Miscellaneous steel, roofing, and siding (6%)
- Administration and warehouse buildings (1%)
- Construction consumables (15%)
- Office supplies (2%)
- Contractor mobilization and demobilization (3%)
- Construction equipment delivery and pickup (5%)

All deliveries to the RCEC will occur from Enterprise Avenue, utilizing various cross streets. Based on the city truck routes, the following routes will be used for truck deliveries to the RCEC (Figure 8.12-2):

- From State Route 92 Westbound, exit Clawiter Road northbound, turn left on Enterprise Avenue, and after passing Whitesell Street, turn left onto the project site.
- From State Route 92 Eastbound, exit Eden Landing Road (Clawiter Road) northbound over the freeway, turn left onto Enterprise Avenue, and left onto the site.
- From State Route 92 Westbound, exit Industrial Boulevard. northbound, turn left onto Depot Road, left onto Clawiter, right onto Enterprise Avenue, and left onto the project site.

In general, only small quantities of hazardous materials will be used during the construction period as described in Section 8.5, Hazardous Materials Handling, which will be shipped by truck. This may consist of welding flux, paint, and various solvents. The pipes and boiler will be cleaned prior to startup using various alkaline solutions. These cleaning chemicals will be used in relatively small quantities and therefore there will probably not be separate truck deliveries of hazardous materials during construction. If this should become necessary, however, all applicable requirements will be met, including the use of transporters with a Hazardous Material Transportation License. Additionally, all deliveries will follow the City-designated truck route, which offers the shortest overall transit time possible and avoids congested thoroughfares, places where crowds are assembled, and residential districts. This route runs along State Route 92, Clawiter Road, and Enterprise Avenue.

Certain components of the facility are of such dimension and weight that special delivery will be required during construction. There are two alternatives for oversize/overweight shipments: onsite rail and heavy-load truck delivery. Onsite rail delivery will be provided by a Union Pacific Railroad track that extends to the southern part of the project site. Transport from the railroad would avoid highway usage and be confined to the project site. According to the City of Hayward, there are no substandard bridges along any city roadways. Any necessary ground shipment exceeding the size and/or weight/load limits described will require a Single Trip Transportation Permit (State of California Vehicle Code, Sections 35780-35796). Appropriate permits will be obtained for all deliveries to comply with local laws and ordinances.

In conclusion, significant effects on the local transportation system are not expected from power plant construction activities for the following reasons:

- The only noticeable effects on traffic will be localized near the construction site.
- The RCEC construction shift will begin at 7:00 and finish at 3:30, limiting the number of vehicles during peak hour traffic periods (7:00 to 8:30 at Enterprise and Clawiter) and thus reducing potential traffic effects.
- Although there are significant numbers of projected truck deliveries over the construction period, any noticeable impact in traffic composition will likely be limited to a relatively small number of days when concrete deliveries will be made. Other deliveries will be spread over the construction period and will not significantly affect local traffic.
- The project will use the existing railway facility for the delivery of heavy equipment, further reducing any traffic delays due to the movement of large trucks.

Electric Transmission Line and Eastshore Substation Expansion—From the switchyard, power will be transmitted through new overhead conductors to PG&E's existing Eastshore Substation. Zone designations for the parcels adjacent to the transmission line are Industrial (I). The transmission lines will

cross the following parcels: the Bay City Rebar Company, Tuscarora, Johnson Controls, and Caltrans. Construction should occur during the 18-21 month overall project construction timetable.

Natural Gas Pipeline—The natural gas pipeline route runs east on Enterprise Avenue to Clawiter Road, then runs east through the southern portion of Berkeley Farms property to the existing PG&E gas line located at the railway right-of-way. Section 8.6, Land Use, describes the route. Pipeline construction will involve trenching, stringing, welding, radiographic inspection, coating, lowering-in, backfilling, street repair, hydrostatic testing, and clean-up activities. These will each be completed as a single, sequenced, construction effort. Access during pipeline construction will be along existing road and rights-of-way. An encroachment permit will be obtained from the City of Hayward Public Works Department prior to construction. Construction damage to existing roads will be repaired to original or as near original condition as possible.

There is a potential for minor, short-term increases in motor vehicle hazards due to the nature of pipeline construction and operation of construction equipment. For example, there may be temporary lane closures and detours necessary to complete construction. Using standard linear construction practices (i.e., warning signs and lights, cones, and "reduce speed" notices), however, will reduce these impacts. Traffic control, including signage and flag persons, will be required on all road segments during construction. Overall, construction of the proposed gas pipeline route is not anticipated to create long-term effects on the transportation system in the area.

Wastewater Return Pipeline—Water supply for the RCEC will come from the advanced wastewater treatment plant, located next to the RCEC. A wastewater return pipeline will cross Enterprise Avenue to the City's Water Pollution Control Facility (WPCF). Construction of the street section would involve typical city road/street segment construction. Access during pipeline construction will be along existing roads and rights-of-way. An encroachment permit will be obtained from the City of Hayward Public Works Department prior to construction. Construction damage to existing roads will be repaired to original or as near original condition as possible. Standard construction practices described above will be used to minimize any construction effects at the intersection of the site driveway and the street.

As with the construction of the natural gas pipeline, there is a potential for minor, short-term increases in traffic and hazards due to the nature of construction and operation of equipment. However, standard construction practices described above will be used to minimize any such effects.

Overall, construction of the water pipeline should not have a significant impact on local transportation. There may be increased traffic during construction due to the scope of construction and proximity of the WPCF, but this effect will be temporary.

Construction Laydown Areas—There is a potential for minor traffic delays due to the movement of materials and equipment between the construction laydown areas and the RCEC site. Laydown areas currently identified include a 10-acre lot on the south side of Depot Road, the Mag Trucking lot east across Whitesell Street from the project, a portion of the City of Hayward Water Pollution Control Facility, and vacant land surrounding the PG&E Eastshore Substation. Any use of these areas for off-site parking (with bussing from the off-site parking areas) would help to alleviate existing traffic congestion at Clawiter Road and Enterprise Avenue during project construction and possibly at other intersections as well.

AWT Plant

Construction traffic effects for the advanced wastewater treatment plant would be the same as for the RCEC plant.

Operation Phase Impacts

RCEC Plant Site

The proposed project will generate a maximum of 42 round trips per day to the facility. These include 32 round trips by employees and 10 round trips by tradespeople, vendors, consultants, and management personnel. There will be a maximum of 25 full-time employees working at the plant. The RCEC plant will be operated by a staff consisting of 2 operators per 12-hour rotating shift (8 a.m. to 8 p.m.), with two relief operators; there will also be 5 maintenance technicians and 5 administrative personnel during the standard 8-hour workday. The facility will be operated 7 days per week, 24 hours per day. The additional 42 trips generated by power plant operation represent, for example, an increase of 0.30 percent to the 13,800 daily traffic volume on Clawiter Road near the project, a negligible amount, which will not result in any change in LOS classification of the affected roadways.

- During plant operations, trucks will periodically deliver/pickup replacement parts, lubricants, liquid fuels, aqueous ammonia, sulfuric acid, trash and other consumables. On average, there will be two truck deliveries to the project site per day. Table 8.12-10 provides a summary of hazardous materials transportation frequencies.
- According to Section 31303 of the California State Vehicle Code, the transportation of hazardous materials shall occur on state or interstate highways offering the shortest possible overall transit time. In addition, the transporter shall avoid, whenever practicable, congested thoroughfares, places where crowds are assembled, and residential districts. According to Vehicle Code 3200.5, transporters of hazardous materials must contact the CHP and apply for a Hazardous Material.
- All transporters of hazardous materials to the project site will be required to have a Hazardous Materials Transportation License. The licensed shipper will obtain a handbook specifying the routes approved to ship such materials. In addition, all shipments will follow the City-designated hazardous materials truck routes.
- Transportation effects associated with power plant operations will not be significant for the following reasons:
- If the 42 trips generated by the operations workforce occur during the peak commute hour periods (6 a.m. to 9 a.m. and 3 p.m. to 6 p.m.), the LOS classifications of potentially affected roadway intersections would not change. Visits by tradespeople, vendors, consultants, and other non-plant personnel will be limited in number and will occur primarily during non-peak commute periods.
- Deliveries of hazardous materials will be limited. Delivery of these materials will occur over prearranged routes and will be in compliance with all LORS governing the safe transportation of hazardous materials.

Electric Transmission Line, Natural Gas, and Wastewater Discharge Pipeline—The only traffic associated with the operation of these interconnections and pipeline would be occasional preventative maintenance vehicles, or repair vehicles in the event of damage to any of the lines. This traffic would not cause any significant change to local traffic conditions.

Construction Laydown and Worker Parking Areas—These areas will be returned to their previous uses after construction of the RCEC and other facilities. There will be no traffic impacts.

Table 8.12-10. Truck transportation of hazardous materials and hazardous waste to and from the site.

Delivery Type	Number and Occurrence of Trucks
Aqueous Ammonia	1 every 3 days
Sulfuric Acid	1 per month (8,000-gallong truck)
Cleaning Chemicals	1 per month
Trash Pickup	1 per week
Sanitary Waste	1 per month

AWT Plant

The AWT plant would have a maximum of 6 employees, 3 per shift. In addition, there would be at least one removal daily of RO sludge cake. Other deliveries would be intermittent. This traffic would not cause any significant change to local traffic conditions.

8.12.3 Cumulative Effects

There should not be any significant cumulative effects resulting from the project in combination with any other proposed projects within the City, since impacts resulting from the power project will have a negligible affect on LOS parameters. The largest planned development in the general project area is the Duc Development Corporation's planned housing and industrial development south of State Route 92, at the southwest corner of Hesperian and Industrial, about 2 miles southeast of the RCEC site. Traffic volumes generated by the RCEC during the operations phase would be sufficiently low that there should be no significant environmental impact. The Duc Development project has not been constructed and the timing of construction is currently uncertain. If, however, it were to be constructed at the same time as the RCEC, there would be little chance of a significant cumulative effect, since traffic traveling to the Duc Development would mostly be accessing the Duc site via Interstate 880 at the Industrial Boulevard and West Tennyson Road interchanges and via State Route 92 at the Industrial Boulevard interchange.

8.12.4 Proposed Mitigation Measures

This section describes the applicant's proposed mitigation measures that will be implemented to reduce or eliminate potential impacts.

8.12.4.1 Construction Phase

The construction contractor will prepare a construction traffic control plan and implementation program that addresses timing of heavy equipment and building materials deliveries, signage, lighting and traffic control device placement, and the establishment of delivery/work hours outside of peak traffic periods.

Methods for mitigating potential traffic impacts caused by construction will include stationing flag persons at the access road into the site, and advance warning flashes, flag persons, and signage along the roadways associated with the natural gas pipeline. Roadways damaged during construction of the natural gas pipeline will be resurfaced to their existing condition.

It should be noted that most trip reduction strategies are not feasible for the construction phase of the project primarily because of the differing schedules of tradespersons, and the need to transport tools and materials to the job site.

8.12.4.2 Construction Phase

Truck Traffic

Mitigation of potential truck traffic impacts will be in the form of adherence to all laws, ordinances, regulations, and standards (LORS) found in Section 8.12.5 below.

Employee/Other Traffic

Though the total number of trips generated by employees and other personnel during peak hours would not cause a significant adverse impact, it would cause a short-term increase in the congestion that already exists in the immediate project area (particularly at State Route 92 and Clawiter). This congestion could be ameliorated somewhat by off-site parking and bussing of construction workers to the RCEC site, if sufficient parking is not available at the site. If more than one off-site parking area were used, traffic congestion effects during construction would be ameliorated somewhat.

8.12.5 Laws, Ordinances, Regulations, and Standards

All applicable laws, ordinances, regulations, and standards and their conformance measures are detailed in the text below. Table 8.12-11 summarizes this information and provides agency contacts.

8.12.5.1 Federal

The Hazardous Materials Transportation Act of 1974, 49 Code of Federal Regulations (CFR) 397.9, is a federal law applicable to this project. It directs the U.S. Department of Transportation to establish criteria and regulations for the safe transportation of hazardous materials. There are no specific conformance measures necessary for this law.

8.12.5.2 State

State laws that would apply to this project include the following:

- California Vehicle Code Section 35780 requires approval for a permit to transport oversized or excessive loads over state highways. The project will conform to Section 35780 by requiring that shippers obtain a Single Trip Transportation Permit for oversized loads, as required by Caltrans, for each vehicle.
- California Vehicle Code Section 31303(b) requires that the transportation of hazardous materials occur on state or interstate highways offering the shortest overall transit time possible. The project will conform to Section 31303(b) by requiring that shippers of hazardous materials use the shortest route possible to and from the project site.
- California Vehicle Code Section 31303(c) requires that the transporters of hazardous materials avoid, whenever practicable, congested thoroughfares, places where crowds are assembled, and residence districts. The project will conform to Section 31303(c) by requiring transporters to use routes that avoid these areas, if possible.
- California Vehicle Code Section 32000.5 requires that shippers of hazardous materials must contact the California Highway Patrol and apply for and receive a Hazardous Material Transportation License. The project will conform to Section 32000.5 by requiring hazardous materials transporters to be licensed when transporting to and from the project site.

Table 8.12-11. Laws, ordinances, regulations, and standards.

LORS	Document and Page	Applicability	AFC Section Where Conformance is Discussed	Agency/Contact
Federal:				
Transport of Hazardous Materials	Hazardous Materials Transportation Act	Requires transporters to adhere to established regulations	8.12.5.1	NA
State:				
Transport oversized or excessive loads over state highways	California Vehicle Code Section 35780	Requires permit to transport oversized or excessive loads over state highways. Enforced by the California Highway Patrol.	8.12.2.3	California Department of Transportation (District 4) James McCrank (510) 541-6345
Transport hazardous materials on state or interstate highways	California Vehicle Code Section 31303(b)	Requires that the transportation of hazardous materials be on state or interstate highways that offer the shortest overall transit time possible.	8.12.2.3 8.12.2.4	California Highway Patrol Sgt. Debbie Pierce (916) 445-1865
Transport hazardous materials on state or interstate highways	California Vehicle Code Section 31303(c)	Requires that the transportation of hazardous materials avoid, whenever practicable, places where crowds are assembled, and residence districts.	8.12.2.3 8.12.2.4	California Highway Patrol Sgt. Debbie Pierce (916) 445-1865
Licensing of hazardous materials transporters	California Vehicle Code Section 32000.5	Requires that transporters of hazardous materials contact the California Highway Patrol and apply for and receive a Hazardous Material Transportation License.	8.12.2.3 8.12.2.4	California Highway Patrol Sgt. Debbie Pierce (916) 445-1865

Table 8.12-11. (Cont'd)

LORS	Document and Page	Applicability	AFC Section Where Conformance is Discussed	Agency/Contact
Local:				
Provide for the long-range planning and development of Hayward's transportation system	City of Hayward General Plan, Circulation Element	The City shall establish a Truck Route Plan and enforcement regulation to ensure that truck traffic is directed away from residential and other sensitive use areas, and, as practical, arterial section with LOS problems.	Figure 8.12-2 8.12.2.3 8.12.2.4	City of Hayward Fire Department Hugh Murphy, Hazardous Materials Program Coordinator (510) 583-4924
		Strive for LOS "C" or better at all major intersections within Hayward, recognizing that in some cases LOS "D" may be acceptable with appropriate mitigation measures.	8.12.1.3 Table 8.12-1 Table 8.12-6	City of Hayward City Management Office, Sanford Groves, Assistant City Manager (510) 583-4302
		Require new development to implement Transportation Systems Management (TSM) programs, and/or pay for traffic improvements through traffic impact fees or assessment district financing.	8.12.4.2	
Encroachment permit (natural gas pipeline)	California Streets and Highway Code, Division 2 Chapter 5.5 Sections 1460-1470	Require an encroachment permit to make an opening or excavation for any purpose in roadway.	8.12.3.2	City of Hayward City Management Office, Sanford Groves, Assistant City Manager (510) 583-4302
Encroachment permit (water supply pipeline)	California Streets and Highway Code, Division 2 Chapter 5.5 Sections 1460-1470	Require an encroachment permit to make an opening or excavation in roadway.	8.12.3.4	City of Hayward City Management Office, Sanford Groves, Assistant City Manager (510) 583-4302

California State Planning Law, Government Code Section 65302, requires each city and county to adopt a General Plan, consisting of seven mandatory elements, to guide its physical development. Section 65302 (b) requires that a circulation element be one of the mandatory elements. The scope of a circulation element consists of the "general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, and other local public utilities and facilities, all correlated with the land use element of the plan." Compliance with this section is described below under the local LORS

8.12.5.3 Local

Most local governments also stipulate LORS that specifically affect the traffic/transportation conditions associated with local projects. The transportation element of the Hayward General Plan (City of Hayward 1998) sets forth goals, policies, and implementation programs related to traffic issues in the City of Hayward. The General Plan sets forth fifteen goals; these goals address regional traffic on freeways and major arterials promoting public transit and alternate modes of transportation. The applicable goals include:

- Goal 1—Reduce the amount of regional through traffic in the Hayward area.
- Goal 2—Expand or Reconfigure the regional road network to reduce through traffic on city streets.
- Goal 3—Minimize adverse impacts of regional traffic on existing neighborhoods.
- Goal 4—Improve mobility to foster economic vitality
- Goal 5—Improve coordination among public agencies and transit providers
- Goal 6—Expand and reconfigure public transit service to meet demand, provide greater mobility and reduce traffic congestion
- Goal 7—Address special needs of transit users
- Goal 8—Create improved and safer circulation facilities for pedestrians
- Goal 9—Provide the opportunity for safe, convenient and pleasant bicycle travel throughout all areas of Hayward
- Goal 10—Encourage land use patterns that promote transit usage

Although all of the above goals do not necessarily apply to the RCEC and AWT plant, the project will be consistent with each of them due to the minimal amounts of construction and operational traffic associated with it. Furthermore, the RCEC will implement appropriate mitigation measures during construction to ensure that safe, reliable transportation is maintained within the city, for automobiles as well as bicycle and pedestrian traffic. In addition, the project will provide much needed electricity during the peak demand times of the California electric system, which provides the electric power that accommodates much of the public transportation system in the region.

In addition to General Plan requirements, the California Streets and Highways Code, Division 2, Chapter 5.5, Sections 1460-1470, requires an encroachment permit if there is an opening or excavation for any purpose in any county highway. The project will conform to Section 1460-1470 by obtaining an encroachment permit from the Hayward Public Works Department prior to all pipeline construction.

8.12.6 Involved Agencies and Agency Contacts

Table 8.12.11 includes a listing of the agencies involved and their contact names and phone numbers.

8.12.7 Permits Required and Schedule

The following table outlines the permit schedule related to traffic/transportation issues for the project. Permits reflect preferred facility routing. Information required to obtain each permit is also included.

Table 8.12-12. Permit schedule for traffic and transportation.

Permit	Schedule
Encroachment permit for the natural gas pipeline: • Site specific plan • Pipeline routes • Road rights-of-way where pipelines will be constructed	1 to 2 weeks from submittal to approval by Hayward Public Works Department.
Encroachment permit for the water supply interconnect: • Site specific plan • Pipeline routes • Road rights-of-way where pipelines will be constructed	1 to 2 weeks from submittal to approval by Hayward Public Works Departments
Transport of oversized or excessive loads over state highways: • Specific route • Transport time • Load contents	Obtain when necessary from Caltrans, 2-hour processing time

8.12.8 References

Alameda County Congestion Management Agency (CMA). 2001. Countywide transportation plan. Internet site: www.accma.ca.gov/ctwtplan.html

Association of East Bay Governments (ABAG). 1999. The bay trail. Internet site: www.abag.ca.gov/bayarea/baytrail/overview.html

Association of Bay Area Governments (ABAG). 2001. Regional transportation improvement plans: Internet site: www.mtc.dst.ca.us/whats happening/STIP/res-3313.xls

California Department of Transportation (Caltrans), Traffic and Vehicle Data Systems Unit. 1999. 1999 annual average daily truck traffic on the California state highway system. Internet site: www.dot.ca.gov/hq/traffops/saferesr/trafdata/1999all/docs/rt092-98.htm

California Department of Transportation (Caltrans). 1999. Commercial vehicle operations and permits: hazardous cargo. Internet site: www.dot.ca.gov/hq/traffops/trksnwim/motion/docs/hazard.htm

California Department of Transportation (Caltrans). 2000. State transportation improvement program 2000. Sacramento, CA.

California Department of Transportation (Caltrans). 2001. State transportation improvement plans: Internet site: www.dot.ca.gov/hq/transprog/stip/stip()201.pdf.

City of Hayward. 1998. Hayward General Plan, circulation element (III). Hayward, CA.

City of Hayward, Engineering-Transportation Division. 2001. Traffic Study for Proposed Russell City Energy Center. Kimley-Horn and Associates, Inc., Oakland, CA. April 20, 2001.

Metropolitan Transportation Commission (MTC). 2001. Regional transportation improvement program 2001. Oakland, CA.

Transportation Research Board. 1980. Transportation Research Circular No. 212—Interim materials on highway capacity. Description of "critical movement analysis planning method."

Transportation Research Board. 1985. Highway capacity manual special report 209.

Mission Boulevard
Grove Way
Hesperian Boulevard
Meekland Ave.
A Street
D Street
2nd Street
Whitman Road
Jackson Street
Harder Road
Tennyson Road
Miami Avenue
West Winton Avenue
Clawiter Road
Cabot Boulevard
Depot Road
Investement
Route 92
238
580
Russell City Energy Center
Eastshore substation

Legend

- BART station
- BART line
- Bus route
- Bus route w/ infrequent stops
- Express bus service
- Local service
- Bicycle network

0.5 0 0.5 Miles

1:24,000

Source: City of Hayward Department of Public Works

Figure 8.12-5

Transit Network

RUSSELL CITY ENERGY CENTER

FOSTER WHEELER ENVIRONMENTAL CORPORATION