

RANCHO-PORTER

CHAPTER FIVE: CIRCULATION ELEMENT

Assesses street layouts, pedestrian design, bicycle routes, parking and public transportation.

CHAPTER 5: CIRCULATION ELEMENT

The Circulation Element is designed to promote the safe and efficient movement of traffic generated by the proposed land uses within the Rancho-Porter Community. The networks of roads provide linkages between the various land uses and public amenities, while integrating the community with surrounding development in Brawley. The Circulation Element recognizes that not all residents or employees of the plan area will have the desire or the means to circulate solely by automobile. A diverse network of pedestrian and bicycle ways traverse the community to provide residents an alternative to driving. The Circulation Element also provides convenient access to the regional arterial, highway network, and public transportation. Analysis was performed using the City of Brawley's General Plan and Service Area Plan.

The framework used to construct the traffic patterns entering and exiting the project area was created from the expected circulation of the community (**Figure 5-A**). This plan examines expected vehicular traffic, along with other modes of transportation such as; walking, bicycling, and mass transit.

5.1 Street Design

The road system in the City of Brawley is defined by a hierarchy of classification types. The classification system differentiates the size, function, and capacity of roadways for the Rancho-Porter project six classifications will be used: Expressway, Minor Arterial, Specific Plan Arterial (Specific Plan Arterials are not used by the City of Brawley), Major Collector, Minor Collector, and Residential Streets. Each category is described with names and characteristics of each roadway. The Rancho-Porter community will be responsible for half-sections of roads bordering the community.

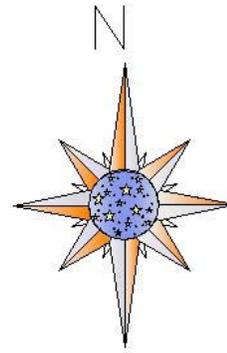
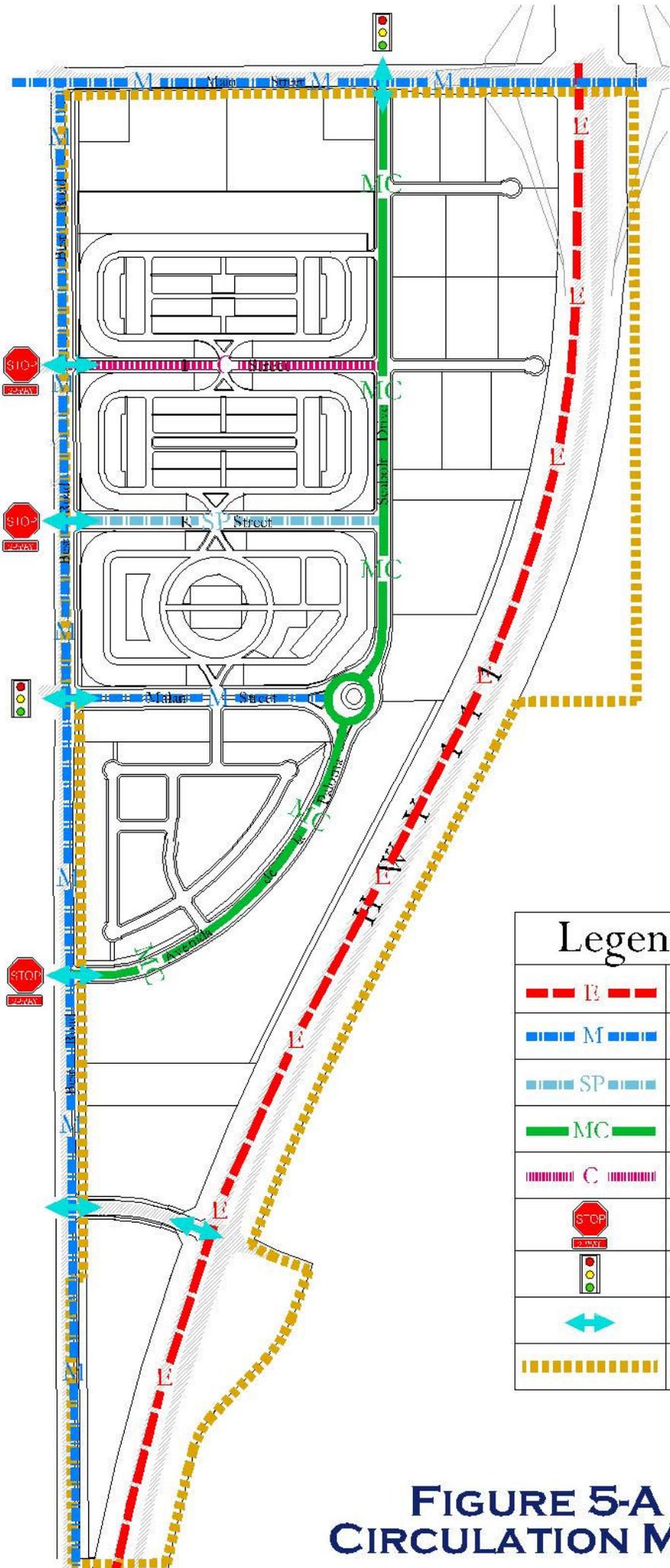
5.1.1 Expressways

The City of Brawley's Service Area Plan describes an Expressway as, "A four-lane divided roadway with a typical right-of-way width of 140-feet and a shoulder-to-shoulder width of 84-feet and no on-street parking. Access to Expressways is only allowed at signalized or un-signalized intersections with City streets designated as either Prime or Minor Arterials. Expressways typically carry regional traffic."

State Route 111(SR-111)

- *Existing* – SR-111 is an Expressway that forms the eastern project boundary. It is currently a four (4) lane roadway with a lowered median.
- *Proposed* - No improvements shall be made to this roadway as it is Caltrans right-of-way.





SCALE: N.T.S.

Legend	
	Expressway
	Minor Arterial
	Specific Plan Arterial
	Major Collector
	Minor Collector
	2 - Way Stop
	Traffic Signal
	Ingress / Egress
	Project Boundary

**FIGURE 5-A
CIRCULATION MAP**

5.1.2 Minor Arterial

A Minor Arterial is a four-lane divided roadway with a right-of-way of 108-feet and a curb to curb width of 82-feet, with on-street parking allowed. Minor Arterials are an important component of the city and regional transportation system as they provide a connection from collectors to prime arterials and expressways. **Figure 5-B** shows the cross section for Best Avenue and Wildcat Drive. **Figure 5-C** shows the proposed cross section for Wildcat Drive. **Figure 5-D** shows the proposed cross section for Main Street. **Figure 5-E** shows the proposed cross section for Malan Street.

5.1.2.1 Best Avenue

- *Existing* - Best Avenue is currently a two-lane Minor Arterial that forms the western project boundary. Best Avenue provides an important north/south link in the eastern portion of the City.
- *Proposed* – In the future the City of Brawley plans for an upgrade of Best Avenue to a four-lane arterial from SR-111 to north of the City’s Sphere of Influence. Rancho-Porter shall be responsible for constructing the eastern half of Best Avenue, adjacent to the community.

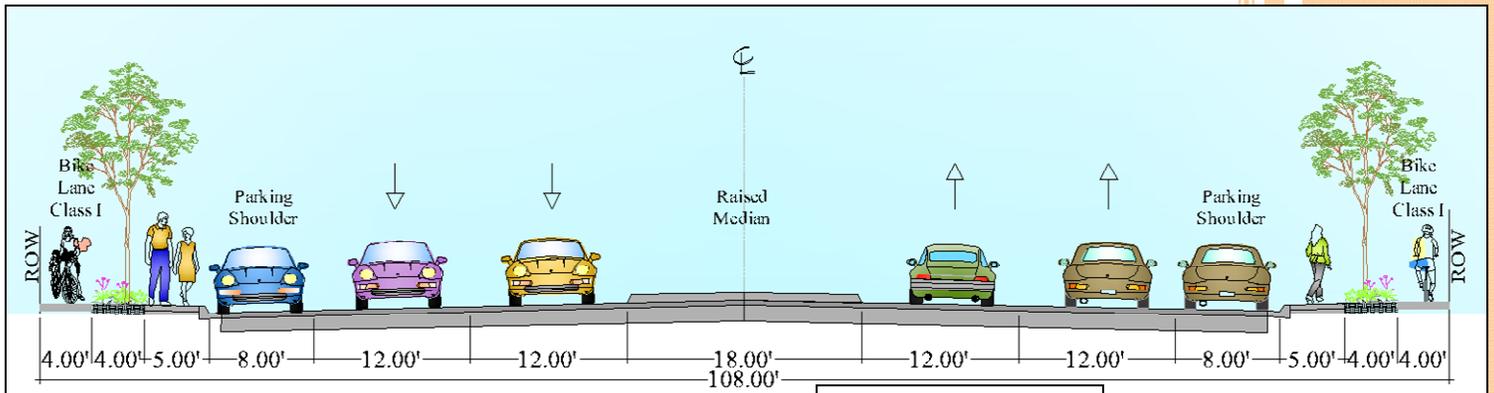


Figure 5-B
Best Avenue

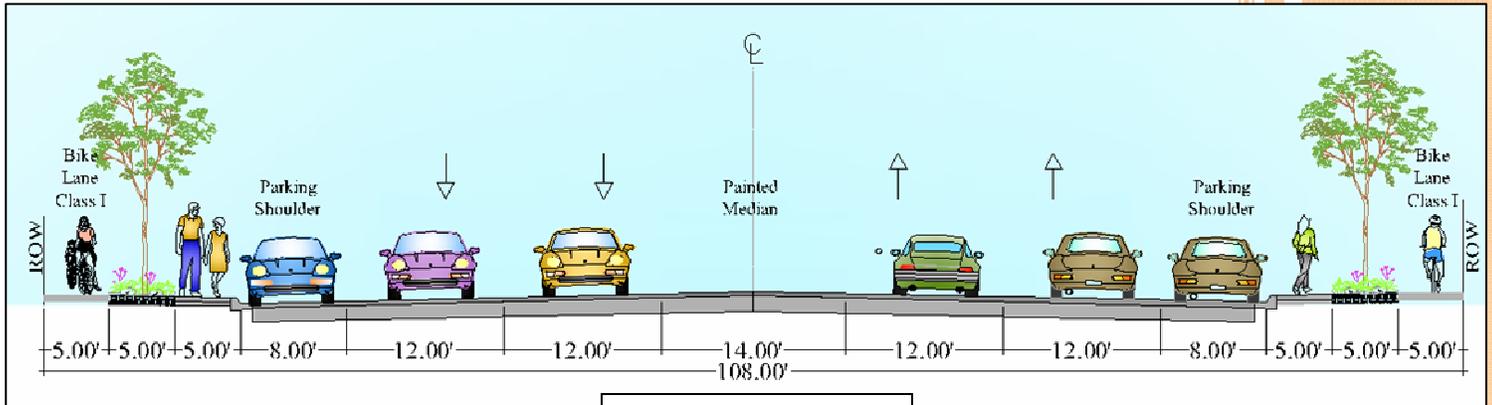
- Four (4) lanes
- Right-of-way 108-feet
- Fourteen (14)-foot median
- Five (5)-foot class I bike lane

5.1.2.2 Wildcat Drive

- *Existing* – Wildcat Drive is currently a two (2) lane arterial that connects Best Avenue to SR-111 where it terminates.
- *Wildcat Drive – Proposed* - The City of Brawley plans for an upgrade of Wildcat Drive to a four-lane arterial from SR-111 past Best Avenue through the La Paloma subdivision, and continuing westward. If desired Wildcat



Drive in front of the mixed use may contain fifteen (15) feet of sidewalk, instead of a five (5) foot parkway between the sidewalk and bike path.

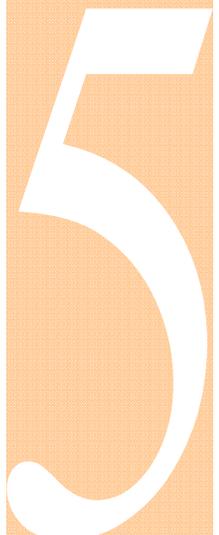


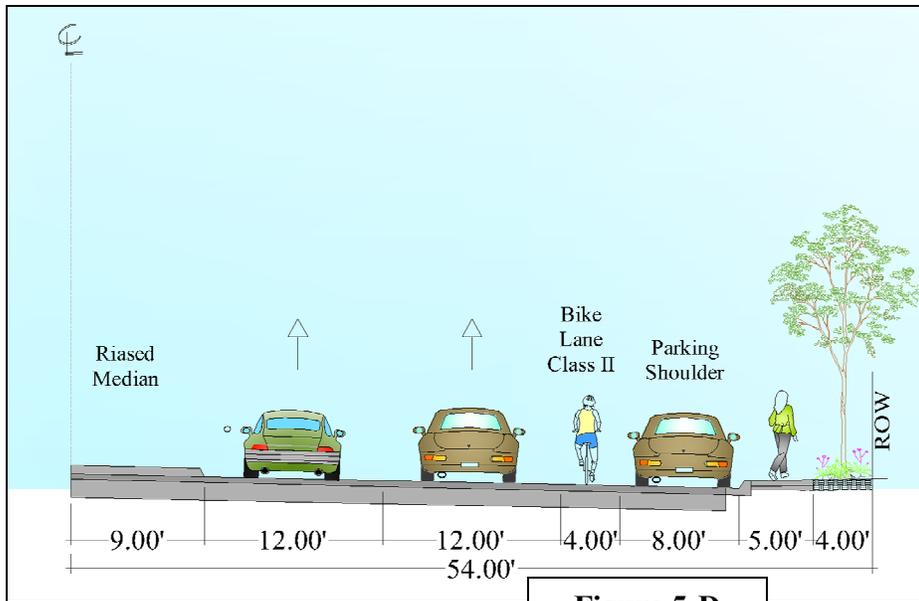
**Figure 5-C
Wildcat Drive**

- Four (4) lanes
- Right-of-way 108-feet
- Fourteen (14)-foot median
- Five (5)-foot class I bike lane

5.1.2.3 Main Street

- *Existing* – Main Street is currently a four (4) lane Minor Arterial that drops to two (2) lanes east of Best Avenue where it forms the northern project boundary. Main Street provides the major east/west link through the entire city.
- *Proposed* - In the future the City of Brawley plans for an upgrade of Main Street to a four-lane arterial from Best Avenue to SR-111. Rancho-Porter shall be responsible for constructing the eastern half of Main Street, adjacent to the community.





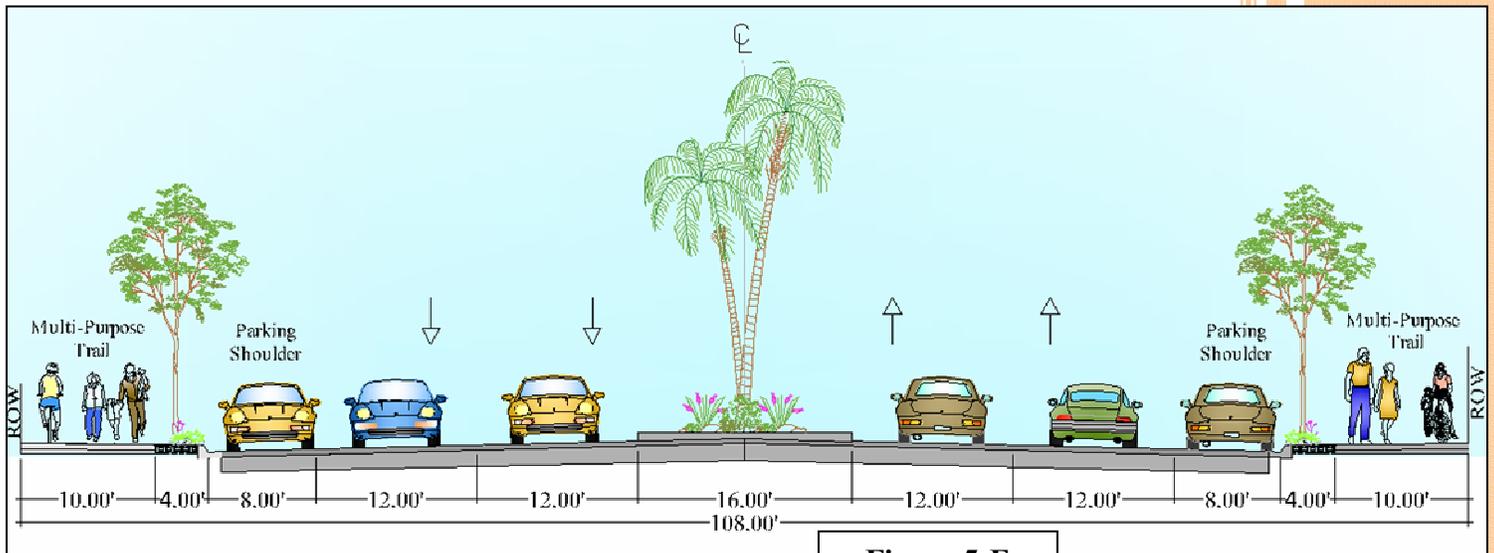
**Figure 5-D
Main Street**

- Four (4) lanes
- Right-of-way 108-feet
- Sixteen (16)-foot median
- Four (4)-foot class II bike lane

5.1.2.4 Malan Street

- *Existing* – Malan Street is currently a two (2) lane Minor Arterial that ends on the west side of Best Avenue. East of Best Avenue, and within the project site Malan Street does not exist.
- *Malan Street – Proposed* - The City of Brawley plans for an upgrade of Malan Street to a four (4) lane arterial throughout the city and from Best Avenue to the intersection of Avenida de la Paloma and Seabolt Drive where it will terminate.





**Figure 5-E
Malan Street**

- Four (4) lanes
- Right-of-way 108-feet
- Sixteen (16)-foot median
- Ten (10)-foot multi-purpose trail

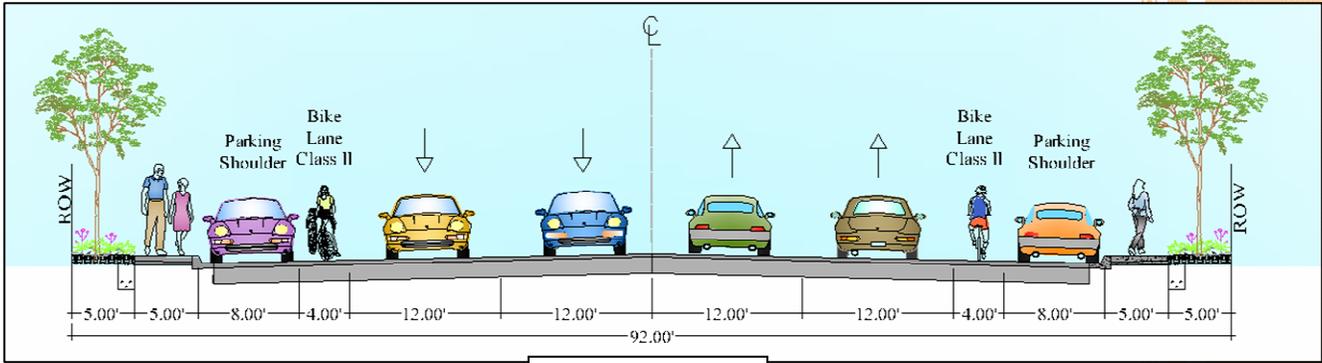
5.1.3 Specific Plan Arterial

Specific Plan (SP) Arterials within Rancho-Porter are four-lane roadways without a center median. The right-of-way is 92-feet with a curb to curb of 72-feet. SP Arterials shall connect Major Collectors to Minor and Prime Arterials. On-street parking shall be allowed on SP Arterials.

“K” Street

- *Existing* – Currently a two (2) lane road that ends before it reaches Best Avenue.
- *Proposed* – Will be a two (4) lane arterial from Best Avenue until it reaches its termination point at Seabolt Drive. **Figure 5-F** is the cross section for K Street.



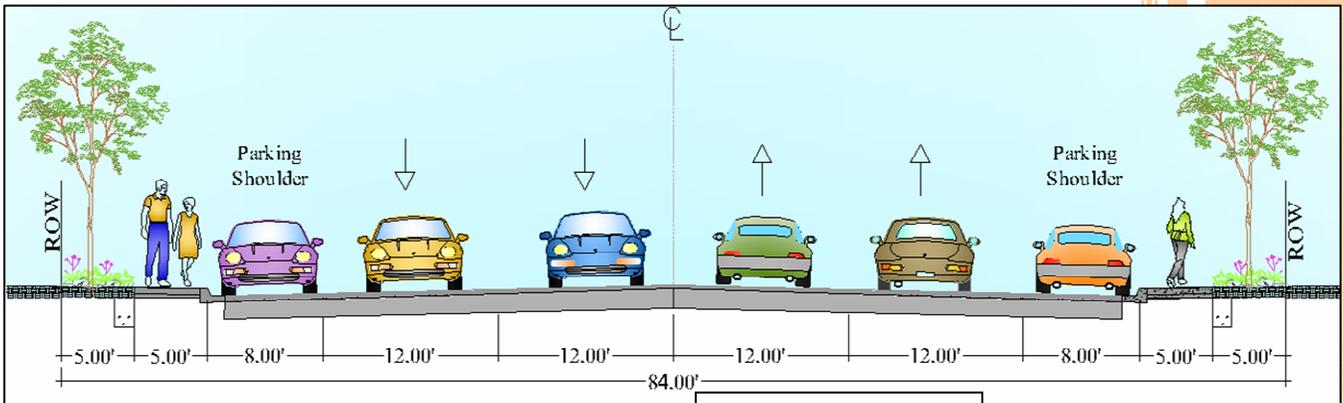


**Figure 5-F
K Street**

- Four (4) lanes
- Right-of-way 92-feet
- Four (4)-foot class II bike lane

5.1.4 Major Collector

A Major Collector is a four-lane roadway with no center median. The typical right-of-way is 84-feet, with a paved width of 64-feet. Major Collectors connect to Minor Collectors, Specific Plan, Minor and Prime Arterials. On-street parking is allowed on all Major Collectors. **Figure 5-G** is the cross section for Major Collectors.



**Figure 5-G
Major Collectors**

5.1.4.1 Avenida de la Paloma

- *Existing* – Will be constructed west of Best Avenue with the construction of La Paloma.
- *Proposed* – Avenida de la Paloma will be a four (4) lane arterial heading south from Malan Street and turning west through the La Paloma subdivision and continuing westward.



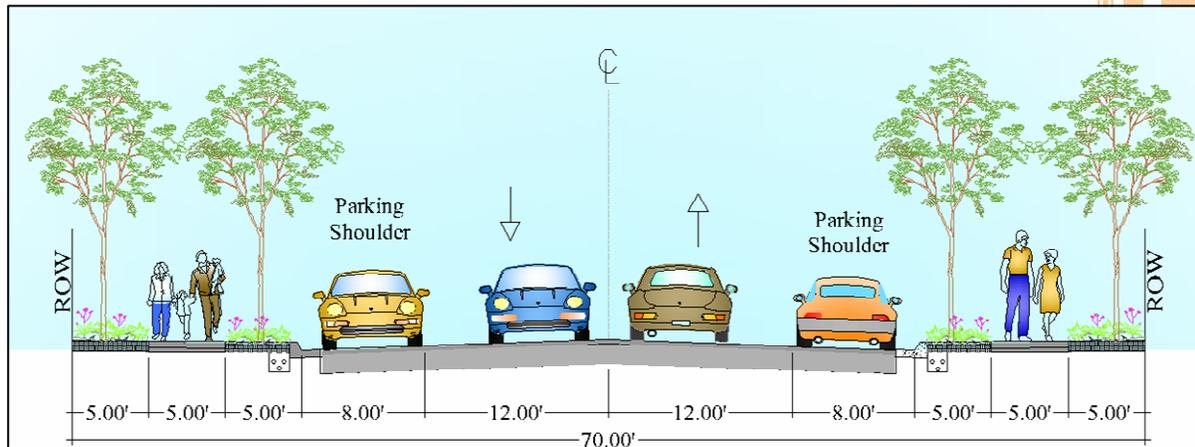
- Four (4) lanes
- Right-of-way 84-feet

5.1.4.2 Seabolt Drive

- *Existing* – Currently does not exist.
- *Proposed* – Seabolt Drive will be a four (4) lane arterial from Malan Street to Main Street, then continue on through the Lucky Ranch Subdivision.
 - Four (4) lanes
 - Right-of-way 84-feet

5.1.5 Local Collector

A Local Collector is a two-lane roadway with a twelve (12)-foot center median. The typical right-of-way is 70-feet, with a paved width of 40-feet. Local Collectors typically connect Residential Street to Major Collectors and Minor Arterials. On-street parking is allowed on all Local Collectors.



**Figure 5-H
Local Collectors**

“I” Street

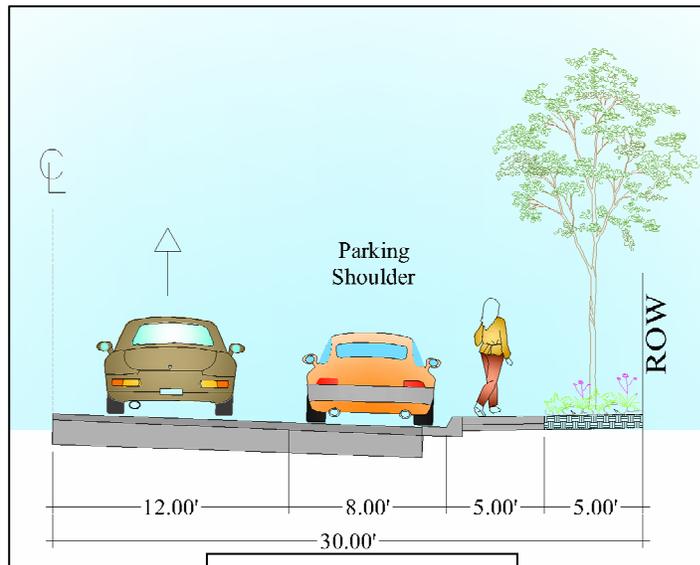
- *Existing* – “I” Street is a currently a two (2) lane collector that terminates at Best Avenue west of the Rancho-Porter Community.
- *Proposed* – “I” Street will be a two (2) lane collector from Best Avenue to Seabolt Drive, where it will terminate. **Figure 5-H** is the cross section for “I” Street.
 - Two (2) lanes



- Right-of-way 70-feet
- No bike lane

5.1.6 Residential Streets

A Residential Street is a two-lane undivided road with a typical right-of-way width of 60-feet and a paved width of 40-feet. On-street parking is allowed on Residential Streets. These roadways serve to collect and distribute traffic between Collectors and Arterials. All remaining streets within the Rancho-Porter Community will be Residential Streets.

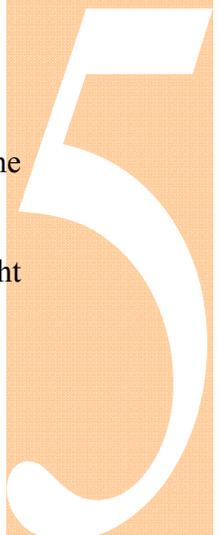


**Figure 5-I
Residential Streets**

5.2 Street Policy

The following shall be minimum requirements for streets within the Rancho-Porter Community:

- All Residential Streets and collector streets shall provide a minimum of two travel lanes, concrete curb-gutters, and a minimum of five (5)-foot concrete sidewalks
- All 60-foot right-of-way corridors shall be two travel lanes with on street parking.
- Cul-de-sacs within Rancho-Porter shall have a minimum of 50-foot radius from the center to the edge of the right-of-way. The paved radius shall be 40-feet.
- Additional widening may be required at intersections where a separate left or right turn lane is required.



- Pedestrian design features shall be incorporated in the community through the implementation of sidewalks, open-ended cul-de-sacs, buffering, and raised crosswalks.
- Streetscapes shall be considered to improve the overall aesthetics of the community. This includes landscaping to provide shade and buffering; and benches to increase length of walks pedestrians are willing to take.
- When not addressed in this document, the City’s current Engineering Standards shall be referenced for street designs.

5.3 Parking Design

Adequate parking shall be provided in the Rancho-Porter Community; if sufficient parking is unavailable people are likely to park illegally and block access for emergency vehicles. Parking will be allowed on Residential Streets and collectors, however, emergency parking will be allowed on arterials.

Streets throughout the community shall have eight (8)-foot shoulders for on-street parking, which will allow sufficient area for parallel parking. On-street parking creates a buffer between pedestrians on the sidewalk and automobiles driving by. This buffer creates the impression of an enclosed space, which promotes pedestrian safety and walkability.

In addition to on-street parking, parking lots will be located within the commercial and the multi-family land uses. These lots will not only provide parking for residents and patrons of the stores but they will also allow for guest parking. The neighborhood park will also have parking spaces to allow for visitors to park off the street.

5.3.1 No Parking Streets

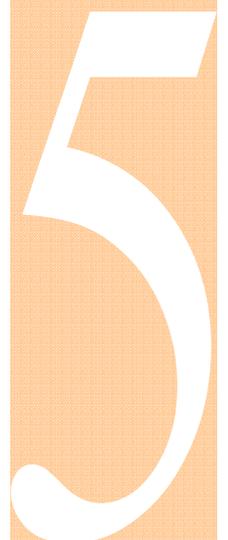
- SR-111

5.3.2 Emergency Parking Streets

- Best Avenue
- Main Street
- Malan Street
- Wildcat Drive

5.3.3 Parking Streets

- Avenida de la Paloma
- “I” Street
- “K” Street
- Residential Streets



- Seabolt Drive

5.4 Parking Policy

The following shall be required for the Rancho-Porter Community:

- Parking should adequately serve the residents, commercial areas and parks.
- On-street parking shall be prohibited within 40 feet of intersections, near fire hydrants or as determined by the City.
- Parallel parking shall be encouraged.
- Parking meters shall not be used in single family areas.

5.5 Pedestrian and Bicycle Design

5.5.1 *Pedestrian Design*

Pedestrian facilities shall be fashioned throughout the development to promote walking as an alternative to the automobile. Sidewalks and linkage trails shall be provided within the project area to connect destinations such as parks, residences, shops, and parking facilities. The objective is to create comfortable, pleasant walkways to promote pedestrian traffic. A good pedestrian environment can reduce the total number of trips taken, as well as support alternatives to single-occupant automobile use. The appeal of the pedestrian environment strengthens the sense of place and supports retail spending.

Pedestrian linkages shall be provided to promote safe walking within the project area. These links will provide safe pedestrian access to and from the project's public amenities. The multi-purpose trail located along Malan Street will end at the east end of the three and three-quarter (3.75) acre park, at State Route (SR) 111, creating the possibility for a pedestrian bridge being placed over SR 111 when the east side of the highway is developed..

Rancho-Porter Community may incorporate raised crosswalks into the design to promote pedestrian friendly streets. Raised crosswalks are speed humps with flat tops marked for pedestrian crossings. These crosswalks bring the streets up to sidewalk level, which increases pedestrian visibility and safety. By reducing the speed of automobiles and making pedestrians more visible, raised crosswalks are an effective planning feature being incorporated into the Rancho-Porter Community.



5.5.2 Bicycle Design

The project shall include Class I and Class II bicycle routes along major transportation corridors (class III bicycle routes will not be included in this plan). The bike routes follow the existing and proposed bike routes of the City of Brawley Circulation Plan.

- **Class I Bike Lanes-** Facilities where exclusive right of way with cross-vehicular traffic is minimized. Class I bike routes serve the exclusive use of bicycles and pedestrians. They are not shared by motor vehicles except for maintenance, security, or emergency purposes. The minimum paved width for a two way bike lane is eight (8)-feet (see **Figure 6-J**). The minimum paved width for a one way bike path is five (5)-feet. The following will have Class I bike routes:
 - Best Avenue
 - Malan Street
 - Wildcat Drive

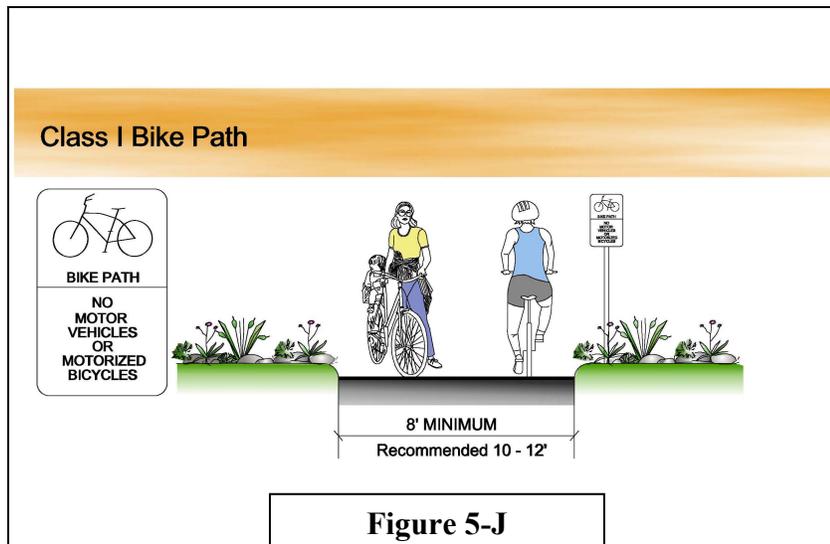
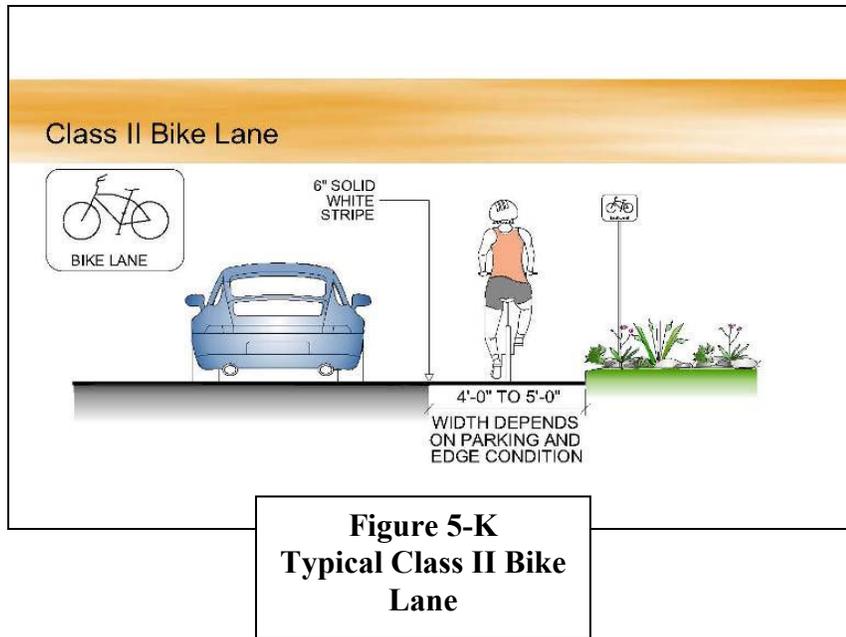


Figure 5-J
Typical Class I Bike Lane

- **Class II Bike Paths-** Preferential use by bicyclists is established within the paved area of roadways adjacent to vehicle lanes through identifiable pavement striping, and signage. Caltrans (California Department of Transportation) recommends that Class II bicycle lanes use a minimum of four (4) feet paved roadway shoulder. The following have Class II bicycle routes:
 - Main Street
 - “K” Street

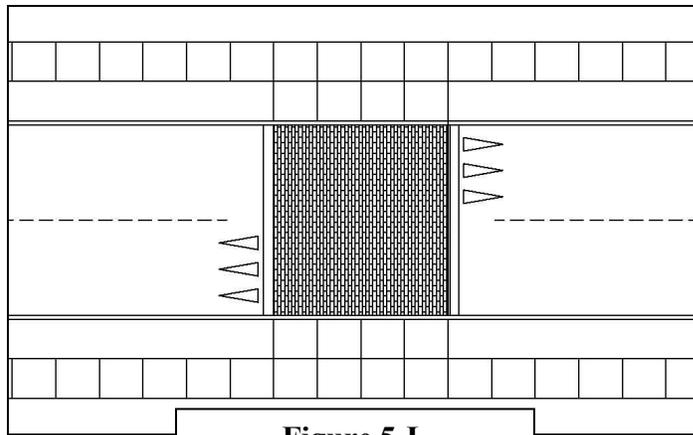


5.6 Pedestrian and Bicycle Policy

5.6.1 Pedestrian Policy

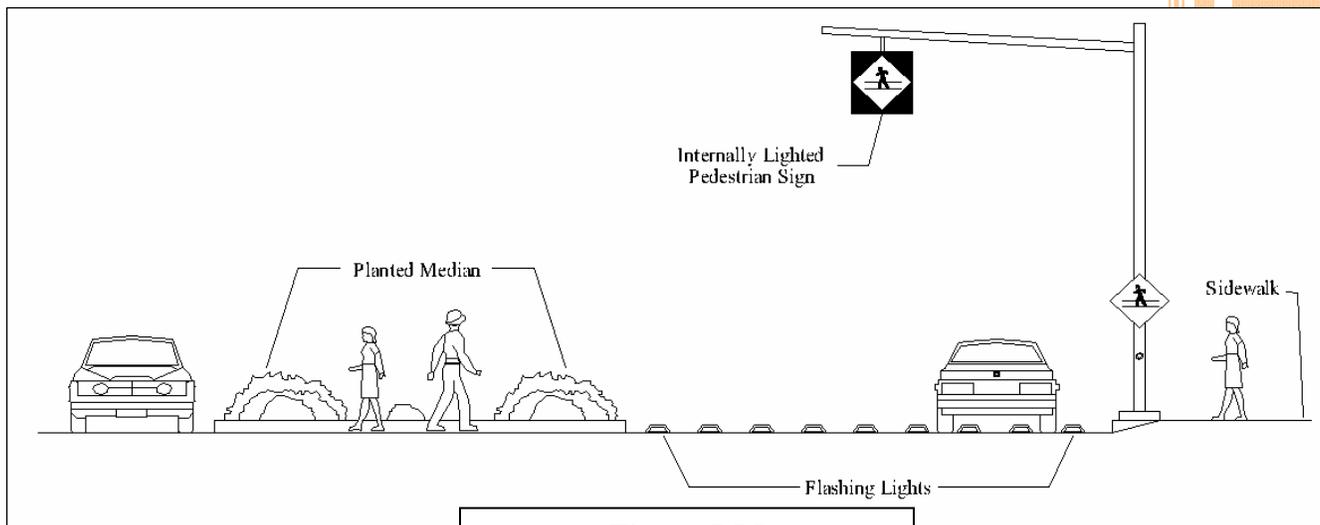
These policies will be put in place to create a safe and walkable community.

- All sidewalks shall be designed to be five (5)-feet wide or greater. Landscaped parkways shall be provided as a buffer between pedestrians and automobiles.
 - They shall be provided at dead ends such as cul-de-sacs and where direct access to public facilities can be obtained.
 - All links shall be located within a minimum fifteen (15)-foot easement with a sidewalk or pathway constructed to a minimum width of five (5)-feet.
 - Landscaping shall be provided along the remaining easement.
- Appropriate signage shall be placed at all pedestrian crossings. At all designated crossings, the use of decorative brick, striping, and/or reflectors shall be provided. To calm traffic, raised pedestrian crossings shall be considered (see **Figure 5-L**).
- Pedestrian access to all transit stops shall be provided.

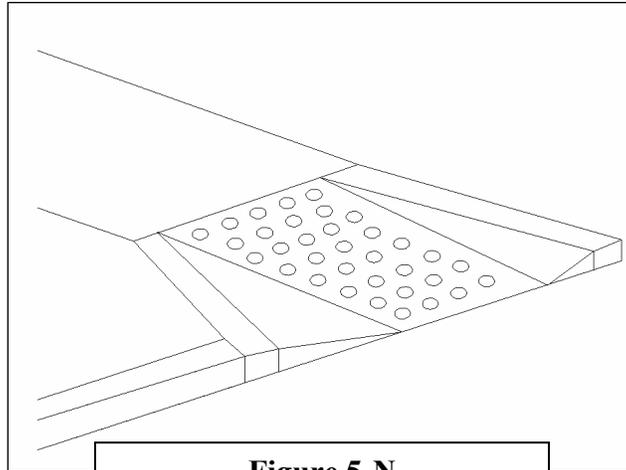


**Figure 5-L
Pedestrian Crosswalk**

- Consideration must be made to ensure that persons with disabilities are provided with equal access to work, home, shops, and transit.
- Along major roadways, parkways shall be provided to separate pedestrian traffic from vehicular traffic where additional right-of-way exists.
- Amount, scale, intensity, and quality of lighting will be considered to promote pedestrian safety.
- Well-lit and clearly marked decorative crosswalks shall be provided at major intersections and near pedestrian links, work centers, commercial facilities, park facilities, and schools (see **Figure 5-M**). Smooth non-slip concrete surface crossings with paving stones are recommended.
- Non slip paving surface will provide a tactile guide for blind pedestrians using a cane to navigate (see **Figure 5-N**) when approaching an intersection.



**Figure 5-M
Flashing Lights at Crosswalk**



**Figure 5-N
Textured Sidewalk Approach**

5.6.2 Bicycle Policy

These policies are in accordance with Imperial County's Bicycle Master Plan and the City of Brawley's General Plan.

- Class I and Class II bicycle routes shall be provided within the major circulation corridors (see **Figure 5-O**).
- Routes throughout the community shall connect the project area with existing City and County routes (see **Figure 5-P**). All bicycle routes and facilities shall be designed in accordance with this Specific Plan.
- Bicycle-parking facilities shall be provided next to all transit stops and within all school zones.
- The location of transit and bicycle facilities shall be incorporated into the location and design of pedestrian facilities.
- All commercial, high density multi-family units and public facilities shall provide bicycle parking facilities. Bicycle parking facilities shall include a rack or other secure device for the purpose of storing and protecting bicycles from theft. Bicycle facilities shall be provided under the following standards:
 - One (1) bicycle parking space per ten automobile parking spaces, with a minimum of ten bicycle parking spaces.
 - Each bicycle parking space shall not interfere with pedestrian or vehicular traffic.

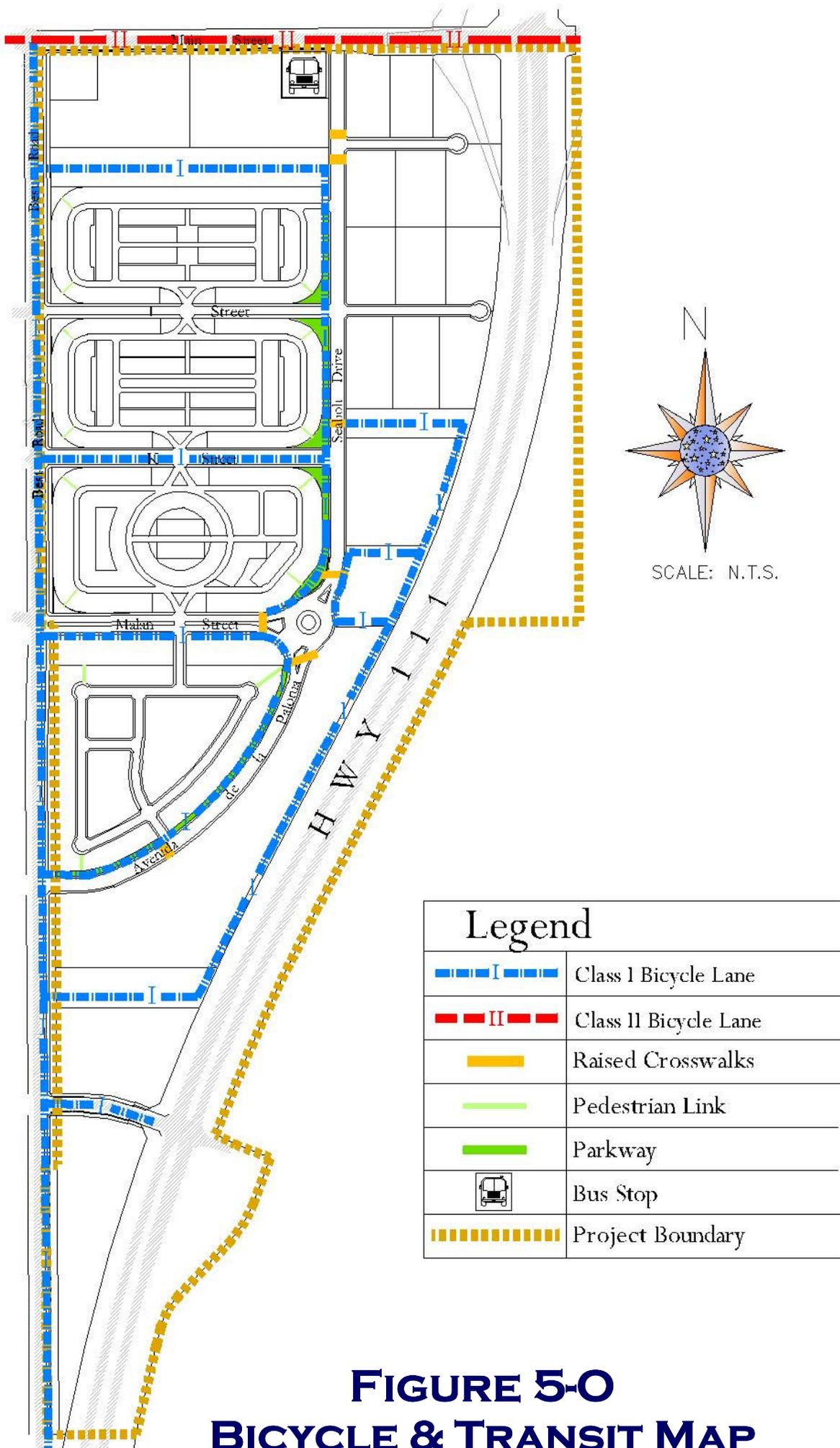
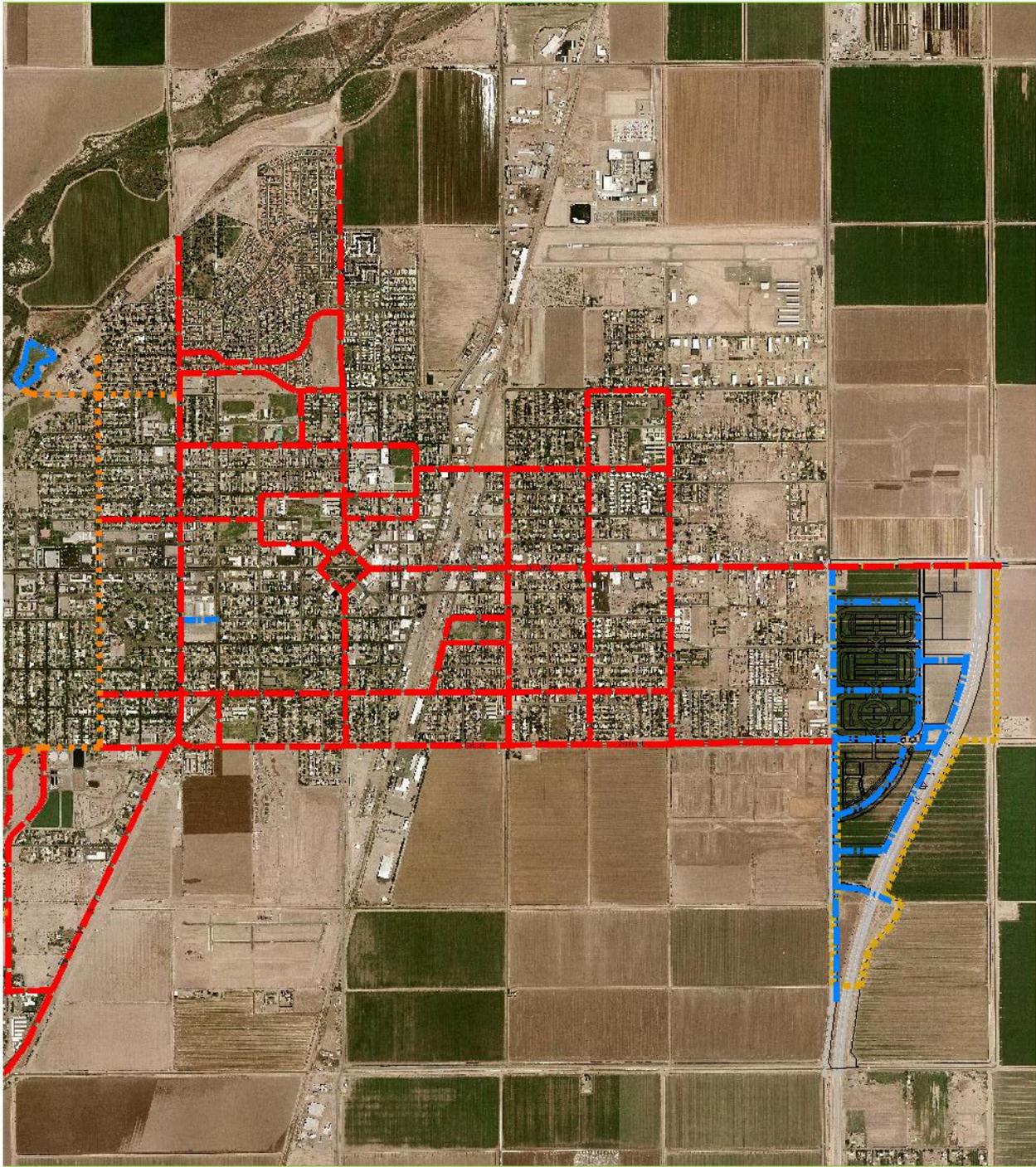
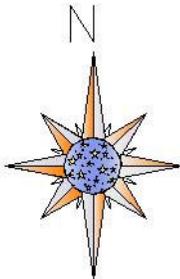


FIGURE 5-O
BICYCLE & TRANSIT MAP



Legend	
	Class I Bicycle Lane
	Class II Bicycle Lane
	Class III Bicycle Lane
	Project Boundary



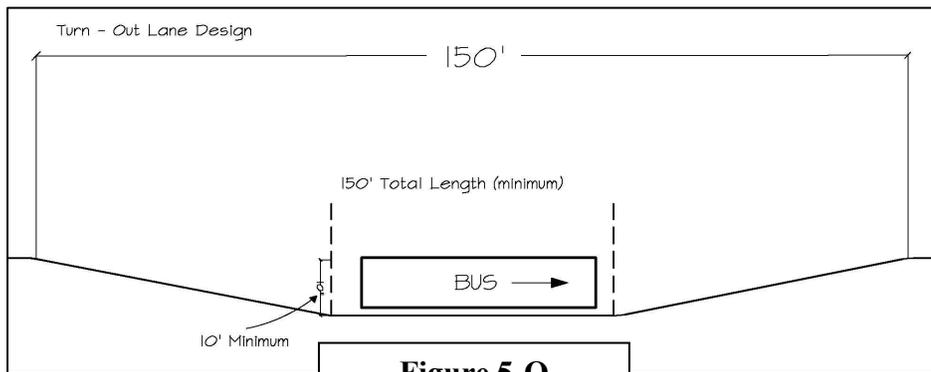
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**FIGURE 5-P
REGIONAL BICYCLE MAP**

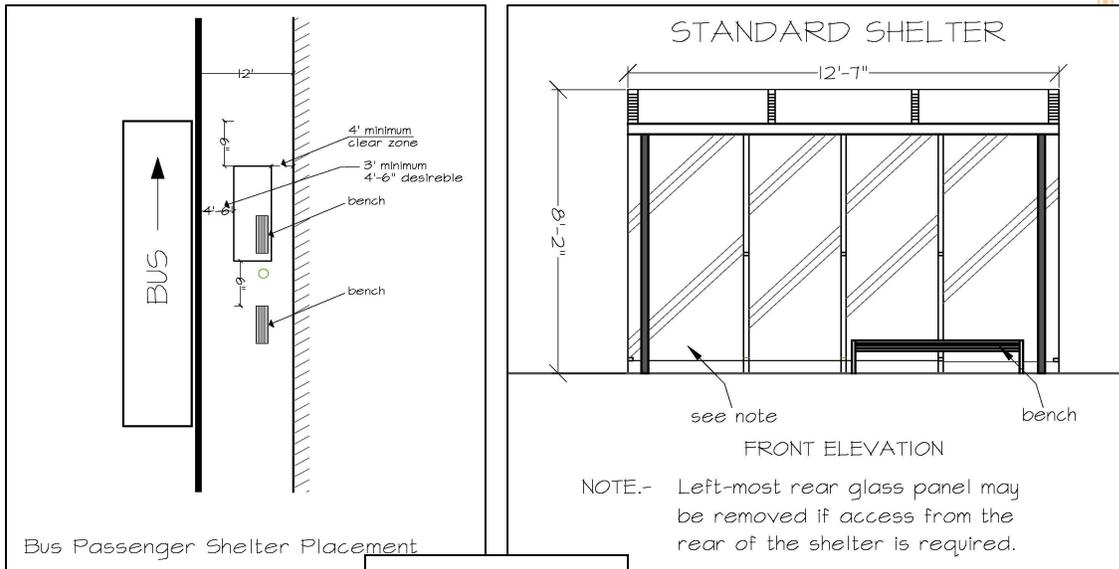
5.7 Mass Transit Design

Transit facilities servicing the expected population should be coordinated by the City of Brawley, Brawley Unified School District, Imperial County Public Works Department, private/public transit entities and the developer, with or along the project area. SR-111 and Main Street are major transit corridors. Planning for future bus stops within Rancho-Porter should take these roadways into consideration.

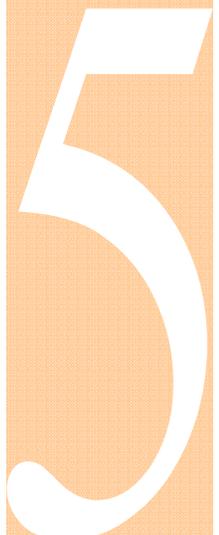
Currently, there are plans for one (1) transit stop within the community near the intersection of Main Street and Seabolt Drive. The goal is to encourage public transit use, to further ensure a pedestrian friendly development.



**Figure 5-Q
Bus Turnout Lane**



**Figure 5-R
Bus Shelter and
Placement**



5.8 Mass Transit Policy

- Major stops should be placed at or near employment centers and should be centrally located for residents.
- Transit stops shall be constructed with bus turnouts to ensure passenger safety.
- Transit stops shall be designed with shelter facilities to shade riders from the sun.
- Bicycle parking facilities shall be provided at major transit stops.

5.9 Summary

The following table summarizes the circulation guidelines and policies for the Rancho-Porter Planned Community.

Table 5.1: Street Standards						
	Arterial Type	Right of Way	Total Lanes	Street Parking	Sidewalk / Bike Path Width	Bike Lane
Main Street	Minor Arterial	108 ft	4	Emergency Parking	5 ft / 4ft	Class II
Best Avenue	Minor Arterial	108 ft	4	Emergency Parking	5 ft / 4 ft	Class I
Wildcat Drive	Minor Arterial	108 ft	4	Emergency Parking	5 ft / 5 ft	Class I
Malan Street	Minor Arterial	108 ft	4	Emergency Parking	0 ft / 10 ft	Class I
“K” Street	Specific Plan Arterial	92 ft	4	Yes	5 ft / 4 ft	Class II
Avenida de la Paloma	Major Collector	84 ft	4	Yes	5 ft / 0 ft	None
Seabolt Drive	Major Collector	84 ft	4	Yes	5 ft / 0 ft	None
“I” Street	Minor Collector	70 ft	2	Yes	5 ft / 0 ft	None
Typical 60’	Residential	60 ft	2	Yes	5 ft / 0 ft	None



CHAPTER SIX: INFRASTRUCTURE AND PUBLIC SERVICES

Discusses design to meet demand for water, wastewater, storm drainage and retention, and energy. Determines the amount of services needed for Rancho-Porter including schools, fire protection, law enforcement, parks and library, and solid waste disposal.

CHAPTER 6: INFRASTRUCTURE & PUBLIC SERVICES

The purpose of this section is to determine Rancho-Porter’s water, sewer, storm drainage, natural gas, electrical and public services demands. The public services include: schools, police, and fire department, library and parks. Data from the City of Brawley’s Service Area Plan and General Plan is used to determine the necessary utilities. The purpose is to determine services and facilities vital to this community without having an adverse affect.

Utility	Provider
Water	City of Brawley
Sewer	City of Brawley
Storm Drainage	City of Brawley/ Imperial Irrigation District
Natural Gas	Southern California Gas Company
Electricity	Imperial Irrigation District
Transit Services	Imperial Valley Transit
Telecommunication	AT&T
Cable	Time Warner

6.1 Population Estimates

In order to estimate the best case demand for city services, the population for single family residential is calculated based on a 3.40 persons per dwelling unit. The calculations for multi-family residential populations are based on estimates of 2.87 persons per dwelling unit. The following tables show calculations of the population with and without the commercial overlay. The total estimated population for the Rancho-Porter Community without the Commercial Overlay is 3,659 and the total population with the Commercial Overlay is 3,203.

Land Use	Density	Units		Acres		Population	
		w/o	w/	w/o	w/	w/o	w/
3,500 sq. ft.	3.40 Persons / DU	110	110	15.30	15.30	374	374
Mobile Home	2.87 Persons / DU	504	345	54.78	38.17	1,446	990
Multi-Family	2.87 Persons / DU	389	389	22.82	22.82	1,116	1,116
Mixed Use (Residential)	2.87 Persons / DU	252	252	20.96	20.96	723	723
Total		1,255	1,093	277.24		3,659	3,203

Note: w/o = with out commercial overlay, w/ =with commercial overlay



6.2 Wastewater Services

The City of Brawley will provide wastewater collection, treatment and disposal services to the Rancho-Porter Community. The Public Works Department oversees plans, constructs and maintains the sewer system. The system includes a collection of pipes and a wastewater treatment plant (WWTP). The WWTP processes the effluent and discharges the treated water into the New River.

6.2.1 Existing Wastewater Services

According to the City of Brawley's Service Area Plan (SAP), February 2007, the wastewater collection system is a gravity flow system, with pipe sizes range from 6 to 30 inches. These pipes flow to the WWTP, where it is treated and discharged into the New River. The existing WWTP is located just north of the City limits east of the New River.

The 2007 SAP states, "The City operates two lift stations, the South Brawley Lift Station No. 1 and the Citrus View Sewage Lift Station No.1, which pump wastewater into nearby gravity sewers. Since construction of the lift stations, development has contributed flow to the lift stations that increases the discharge into the collection system." A third lift station was constructed in 2007 west of Dogwood Road halfway between Best Canal and Rockwood Canal.

6.2.2 Future Wastewater Services

According to the Service Area Plan, "the City can provide wastewater services to planned development areas within its planning area by expansion of existing wastewater treatment facilities and by construction and replacement of required wastewater collection and conveyance facilities."

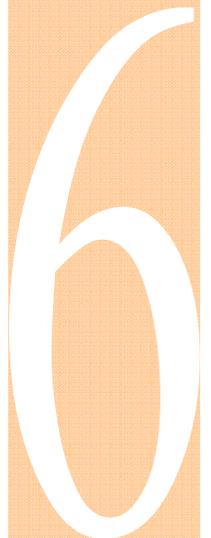
Any wastewater lines that are located near the Rancho-Porter Community deemed inadequate by the City will need to be replaced during construction of the community. Rancho-Porter will be responsible for design and construction of sewer lines within the subdivision. Before construction can begin however, approval of design must be given by the City Engineer.

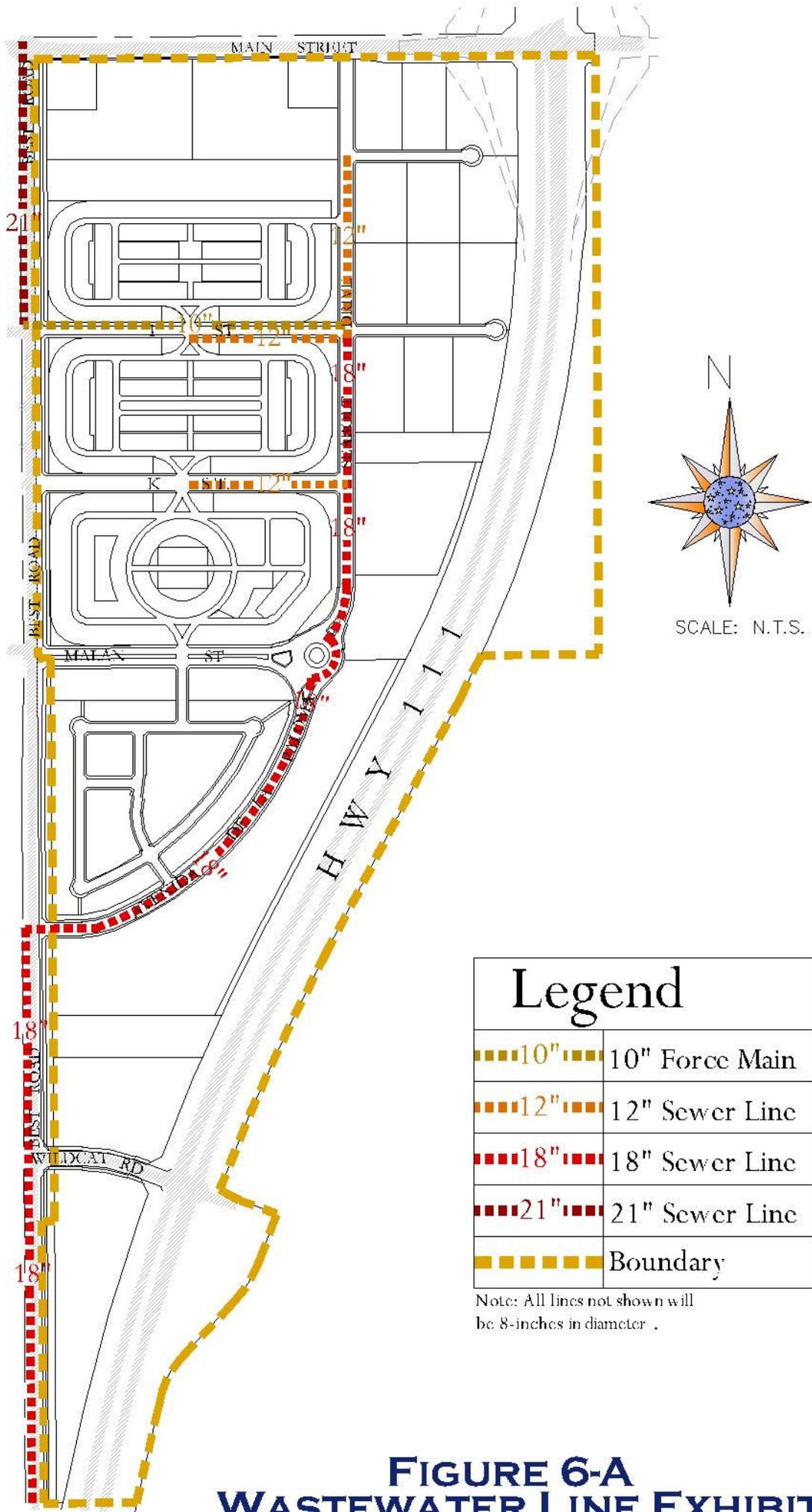
6.2.3 Wastewater/Sewer Discharge Estimates

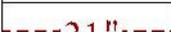
The City of Brawley uses wastewater production factors with each land use using different factors. Residential uses are based on a gallon per day per person, while other land uses are based on a gallon per day per acre. **Table 6.3** provides the estimated sewage discharge to the City of Brawley's wastewater collection system. The Rancho-Porter Community is expected to discharge between 0.608 and 0.602 million gallons of wastewater per day (GPD).



Table 6.3: Total Discharge in Millions of Gallons per Day								
Land Use	Acres		Population		Wastewater Production Factor	Time	GPM	
	w/o	w/	w/o	w/			w/o	w/
3,500 sq. ft.	15.04	15.04	374	374	105	1,440	27.3	27.3
Mobile Home	53.63	37.32	1,446	990	105	1,440	105.4	72.2
Multi-Family	22.82	22.82	1,116	1,116	105	1,440	81.4	81.4
Mixed Use (Residential)	21.04	21.04	723	723	105	1,440	52.7	52.7
Mixed Use (Commercial)	21.04	21.04	n/a		2,500	1,440	36.5	36.5
Commercial	35.45	53.05	n/a		2,500	1,440	61.5	92.1
Public Facilities	33.24	32.05	n/a		2,500	1,440	57.7	55.6
Total Gallons per Minute (GPM)							422.5	417.8
Peak Factor (x2.0) = GPM							845.0	835.6
Total Discharge in Million Gallons per Day							.608	.602
Note: w/o = with out commercial overlay, w/ = with commercial overlay								





Legend	
	10" Force Main
	12" Sewer Line
	18" Sewer Line
	21" Sewer Line
	Boundary

Note: All lines not shown will be 8-inches in diameter .

**FIGURE 6-A
WASTEWATER LINE EXHIBIT**

6.3 Water Services

6.3.1 Existing Water Services

The City of Brawley shall provide potable water, treatment and distribution for the Rancho-Porter Community. The Imperial Irrigation District (IID) receives water via the All American Canal. Then IID delivers the raw water to the plant via the Mansfield and Central Main Canals. According to the City of Brawley Service Area Plan, “the exiting water distribution system consists of three storage facilities and three pump stations.”

According to the 2007 SAP, “The average daily flow is 8 MGD the current plant has a capacity of 15 MGD and provides adequate space for expansion up to 30 MGD. This plant is located on Cattle Call Drive, west of Highway 86.”

6.3.2 Future Water Services

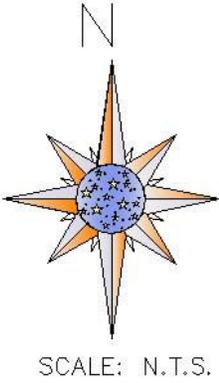
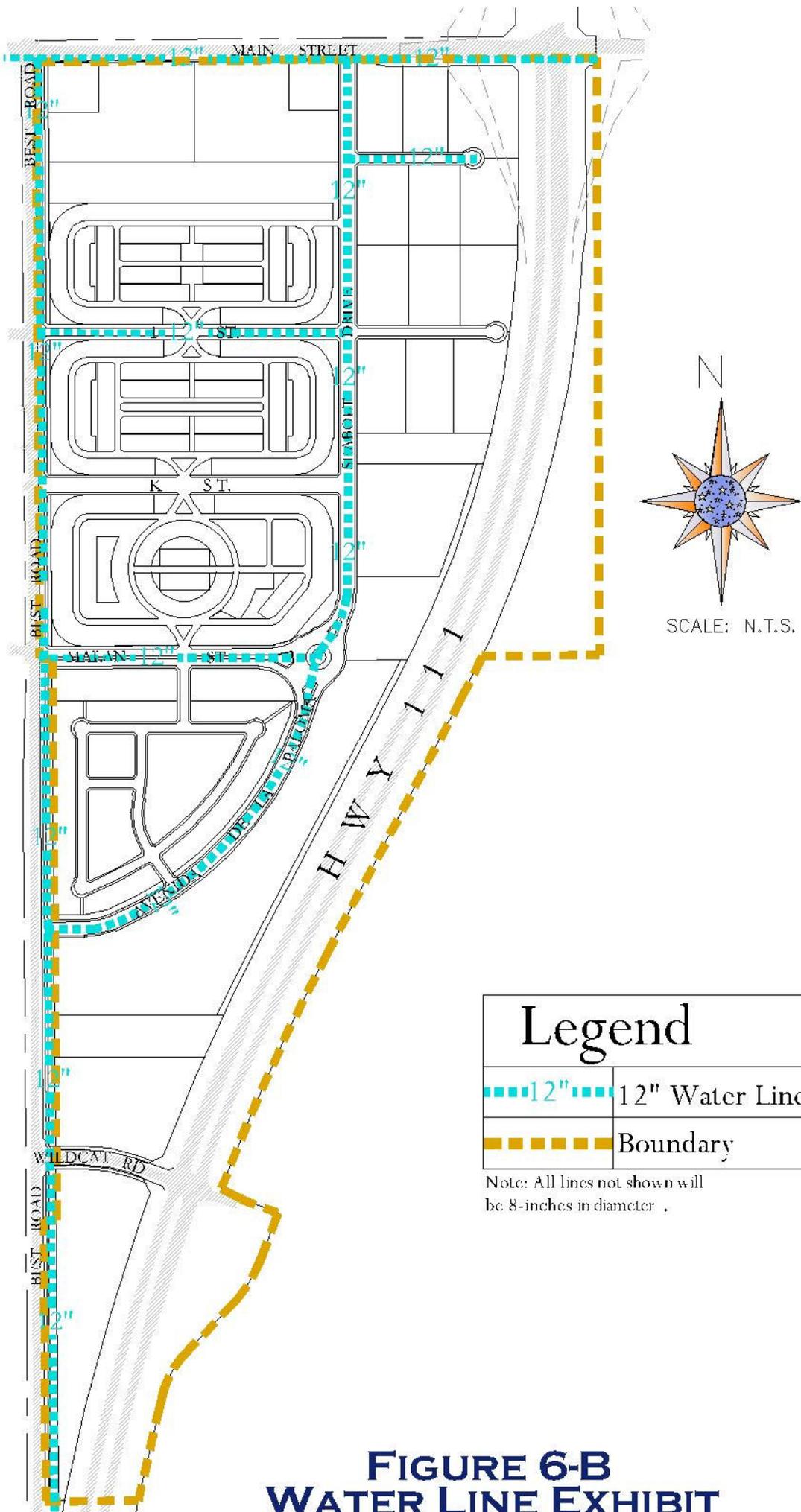
The City will be able to provide water services to developments inside the planning area by expansion and extension of its existing system. Any water lines that are located near the Rancho-Porter Community deemed inadequate by the City will need to be replaced during construction of the community. Rancho-Porter will be responsible for design and construction of water lines within the subdivision. Before construction can begin however, the design must have approval from Brawley’s City Engineer.

6.3.3 Water Usage Estimates

Water usage is based on either gallon per person bases or gallons per acre, depending on the land use. Residential uses are based on 250 gallons per person; commercial land uses are based at 3,000 gallons per acre; and public facilities is based on 2,000 gallons per acre. **Table 6.4** provides the estimated water use for the Rancho-Porter Community. The total usage per day will average 1.15 million GPD without the overlay and 1.09 million GPD with the overlay. The peak flow will be approximately 2.88 million GPD without the overlay and 2.72 million GPD with it.

Table 6.4: Water Usage in Millions of Gallons per Day							
Land Use	Acres		Population		Water Usage Factor	GPD	
	w/o	w/	w/o	w/		w/o	w/
3,500 sq. ft.	15.04	15.04	374	374	250	93,500	93,500
Mobile Home	53.63	37.32	1,446	990	250	361,500	247,500
Multi-Family	22.82	22.82	1,116	1,116	250	279,000	279,000
Mixed Use (Residential)	21.04	21.04	723	723	250	180,750	180,750
Mixed Use (Commercial)	21.04	21.04	n/a		3,000	63,120	63,120
Commercial	35.45	53.05	n/a		3,000	106,350	159,150
Public Facilities	33.24	32.05	n/a		2,000	66,480	64,100
Total Gallons per Day (GPD)						1,150,700	1,087,120
Peak Flow (x2.5) = GPM						2,876,750	2,717,800
Note: w/o = with out commercial overlay, w/ = with commercial overlay							





Legend	
	12" Water Line
	Boundary

Note: All lines not shown will be 8-inches in diameter .

**FIGURE 6-B
WATER LINE EXHIBIT**

6.4 Storm Drainage

6.4.1 Maintenance of Drainage Facilities

Storm water drainage within the City of Brawley utilizes a combination of storm drain piping into the New River from Imperial Irrigation District (IID) main and lateral drains and retention basins. All storm drains will flow into the existing IID drainage facilities. Originally these drains were intended to convey only return flows from agricultural activity, IID allows urban development run-off, but limits the amount of storm water run-off that an urban development can discharge into their drain system to mitigate down stream flooding. Water quality issues prohibit simple diversion of storm water run-off from new developments to the New River. Appropriate environmental mitigation is discussed in the project's EIR.

Storm drain facilities are planned for the project area to handle general urban run-off including three inches of rain within a 24-hour storm. The general urban run-off, often referred as "nuisance run-off," can be piped directly into a treatment area, and then into the Imperial Irrigation drainage system. Various size and types of treatment areas can be located within open space areas, within commercial and industrial landscaping areas or adjacent to public parking lots.

During the grading plan development stage, the project shall consider designs that include methods to reduce or treat polluted water during and after construction. The project shall comply with the Regional Water Quality Control Board requirements as well as the City's adopted Storm Water Management Plan. All retention and storm drain systems shall comply with the City of Brawley's standards. **Figure 6-C** is the proposed drainage system for the project area.

6.4.2 Retention Basin

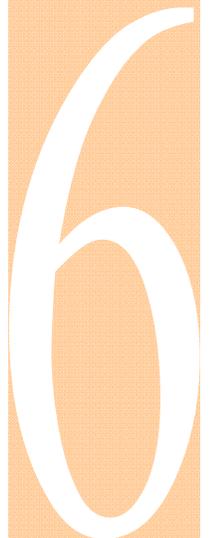
All urban runoff will be piped into the retention facilities through a storm drain system consisting of inlets throughout the project area. To reduce the threat of flooding retention basins shall be capable of handling 100-year/24 hour storm (assuming a total of three (3) inches of rain) will be required within the project area. The following formula was used to determine the required storage and basin area:

$$\text{Required Storage} - Q = C * I * A * SF$$

- Q = Required storage
- C = Run-off coefficient (1.0)
- I = Rainfall intensity total (3 inches)
- A = Area in acres (210.43 gross acres)¹
- SF = Ret. basin side slope factor (1.25)

Retention Basin Sizing –

¹ 210.43 acres was used to determine the retention basin area because only 210.43 acres are being developed.



- RBA = 15.11 ac
- Q = 65.76
- Storage Depth Required = $65.76 / 15.11 = 4.35$ feet
- Free Board = 1.00 feet
- Total depth = 5.35 feet

Assuming the average depth of 5.35 feet, as defined by the Rancho-Porter Preliminary Drainage Study, the area for the retention basin needed is **15.11 net acres**. All storm drain systems shall be designed to City of Brawley and California Regional Water Quality Control Board standards. Retention basins within commercial areas should be combined with landscaping; however the retention basins for the commercial sites shall be done separately on-site.

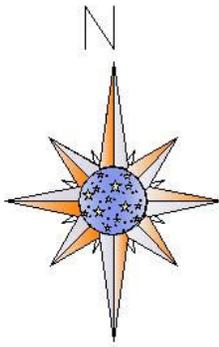
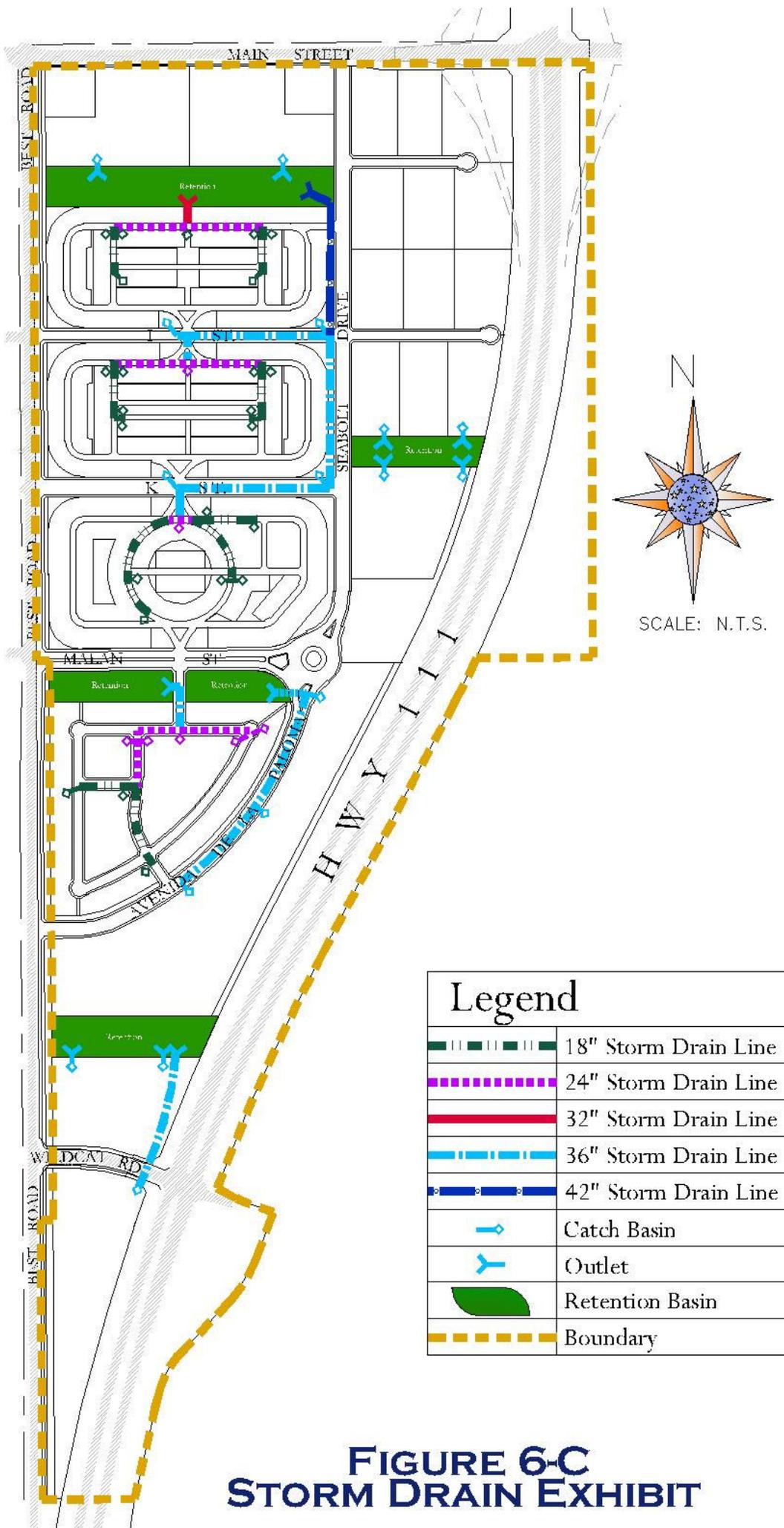
6.4.3 Storm Drain Policies

The following are guidelines for the establishment of retention basin² facilities within the project area:

- A landscaping plan shall be prepared by a licensed landscape architect and shall be approved by the Parks and Recreation Director.
- The landscaping plan shall include the minimum criteria:
 - ♦ A summary of the implementation plans for long term maintenance shall be listed.
 - ♦ A soil maintenance plan that includes a report on soil quality and necessary amendments that will ensure thriving landscaping.
 - ♦ A drainage plan shall be provided.
- At least 50% and up to 100% of the retention basin shall be xeriscaped.
- If needed appropriate drainage infrastructure such as drain pipes or tile drains can be installed below the surface.
- Low level areas in the retention basin should maintain an aesthetic appeal and should not be fenced off or barricaded unless safety is a concern.

² There are two different types of basins that hold excess storm water. A *retention basin* is a basin that is designed to retain water, or hold it indefinitely. These basins hold storm water and do not release it back into the storm drainage system. A *detention basin* is designed to detain water, or hold it temporarily, releasing it back into the storm drainage system when appropriate. The terms are often used interchangeably, with *retention* generally being used in the Imperial Valley.





SCALE: N.T.S.

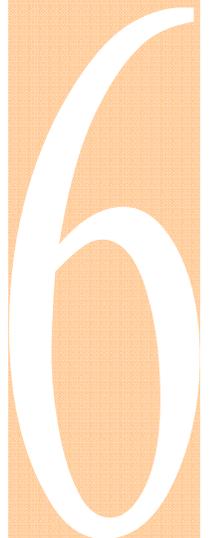
Legend	
	18" Storm Drain Line
	24" Storm Drain Line
	32" Storm Drain Line
	36" Storm Drain Line
	42" Storm Drain Line
	Catch Basin
	Outlet
	Retention Basin
	Boundary

**FIGURE 6-C
STORM DRAIN EXHIBIT**

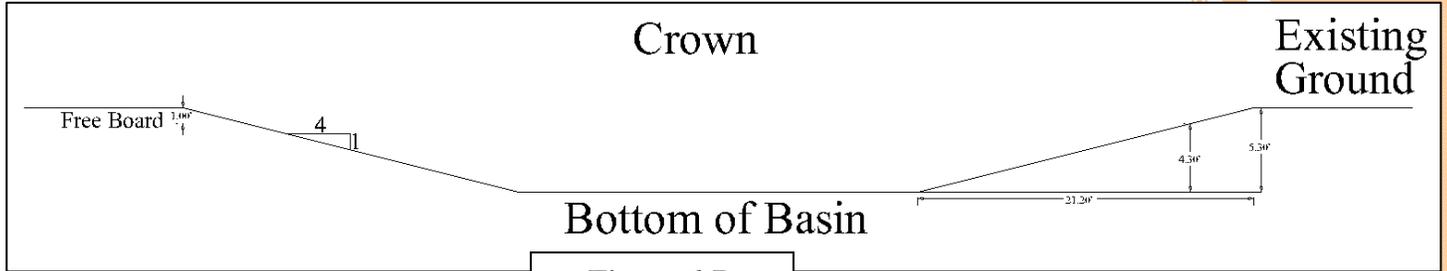
- Retention basins shall be designed to be terraced, sloped, or with other appropriate drainage facilities as mentioned above. To ensure adequate drainage for slope or terraced facilities, the following criteria shall apply:

Table 6.5: Maximum Slope Requirements	
a. Turf Areas	4:1 slope (5:1 slope is recommended to enable easy mowing of grass)
b. Non-Turf Areas	3:1 slope
c. Side Slope Adjacent to Streets	6:1 slope
d. Slopes Between Tiers, if terraced (slopes must have landscaping to hold soil)	1:1 slope in areas with no public access
	3:1 in areas with public access
e. Active Recreation Areas	Flat, with minimum slopes are required for drainage
f. Structural Elements	As required for public safety

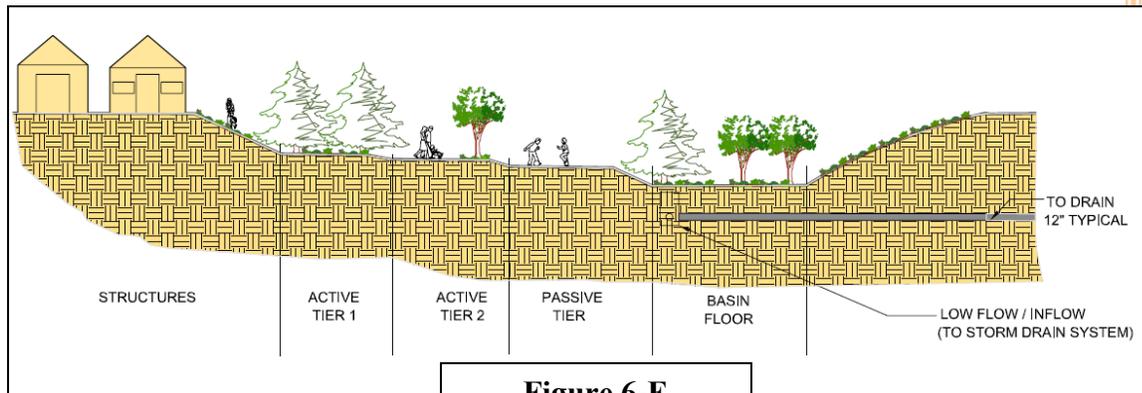
- Areas of frequent flooding (the low water line) and areas where water is likely to flow freely should be designed without impediments.
- Paved areas should be kept to a minimum in areas of frequent flooding.
- Retention basins shall be used in conjunction with Best Management Practices (BMPs) for urban run-off and when required.
- Areas used for owl conservation shall be void of park amenities for at least 300 feet from an artificial burrow site. Artificial burrows within basins shall be sited in accordance to approved mitigation by the California Fish and Game.
- All discharge will go into the Imperial Irrigation District drainage system.
- Commercial, Multi-Family and school sites will provide their own retention system on site.
- All retention basins shall drain within 72-hours into the IID drain system. If the drainage should take more than 72-hours the project should participate in a mosquito abatement program as required by the City. In addition, a sign should be posted to call the County's Environmental Health Department in case of mosquito infestation.
- Discharge will be by twelve (12) inch pipes, nuisance water from the development might be pumped to the final discharge point.



- According to the General Plan, soils having a high or moderate permeability should be left in their natural state to reduce run-off and encourage groundwater recharge.



**Figure 6-D
Retention Basin
Cross Section**



**Figure 6-E
Terraced Retention
Basin**

6.5 Utilities

The provisions of services to the Rancho-Porter Community are shared with other agencies besides the City of Brawley. Energy services are provided by the Imperial Irrigation District and the Southern California Gas Company. These utilities which can be undergrounded, according to the respective companies, shall be undergrounded.

The developer, along with the City of Brawley and service providers should coordinate the installation of dry utilities such as telecommunications, cable, electricity, and natural gas for Rancho-Porter. Parkway easements should be designed for landscaping and undergrounding of utilities. Landscaping and screening within or along these easements is encouraged. Gates and fences are discouraged. However, if necessary, coordination should be done to screen large equipment.

6.5.1 Electricity

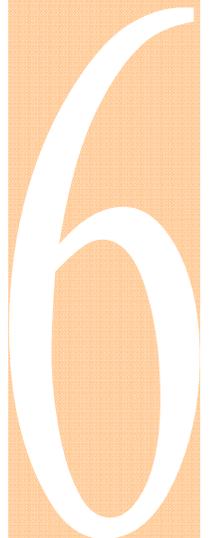
The IID is to provide electrical power to the Imperial Valley. Currently, there are power lines adjacent to the project area. Future development within the proposed SOI will require analysis by IID planners and new substations and transmission lines may be required.

Construction on and restrictions for use of IID Energy transmission rights-of-way:

- All vegetation on or adjacent to the right-of-way shall be low growing (ten (10)-foot maximum height).
- Shrubbery planted near IID Energy structures (poles, towers, etc.) shall allow for working area ground level. (No closer than five (5) feet from structures, in any direction).
- Truck and equipment access to all transmission-line structures shall be provided at all times.
- No buildings, signs, billboards, swimming pools, decks, flag posts, or other structures shall be located within the right-of-way.
- IID shall not allow using the right-of-way for retention area or any water holding facilities.
- No lighting fixtures shall be located within the right-of-way without written approval from IID Energy.
- No excavations near transmission structures (poles, towers, etc.) shall occur without written approval from IID Energy.
- All utilities which can be undergrounded, according to the respective utility companies, shall be undergrounded
- Other restrictions may apply for specific situations.

6.5.2 Natural Gas

Natural Gas is delivered by the Southern California Gas Company via twin ten-inch lines, which run south through the County in Range 14 East. These lines serve Niland, Calipatria, Brawley, Imperial, El Centro, Heber, and Calexico; and branch lines serve Holtville, Westmorland, Seeley, Naval Air Facility, and Plaster City. Rural residents are served by laterals from the branch lines. The lateral lines typically do not exceed a quarter mile in length.



According to the 2007 SAP, “The City will coordinate with the natural gas supplier to ensure adequate right-of-ways and easements are provided.”

Natural gas lines located along Dogwood Road and Bryant Road will most likely provide services to the Rancho-Porter Community. South of Mead Road along Dogwood Road are ten (10) inch and sixteen (16) inch pipelines. At Mead Road the ten (10) inch line turns east until it reaches Bryant Road and proceeds to the north. The sixteen (16) inch line along Dogwood Road crosses over the ten (10) inch line where then drops to eight (8) inches and proceeds north following the road. It is highly probable that the ten (10) inch line will service the Rancho-Porter Community.

6.5.3 Telecommunication

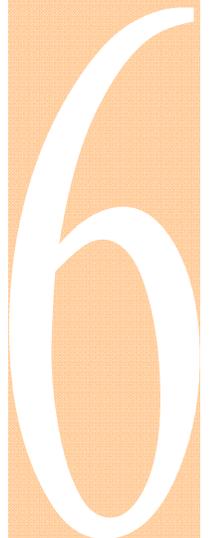
Currently, there is a visible telecommunication line north of the project area. AT&T is the primary phone service provider in the Imperial Valley and will be accessible for the Rancho-Porter project area.

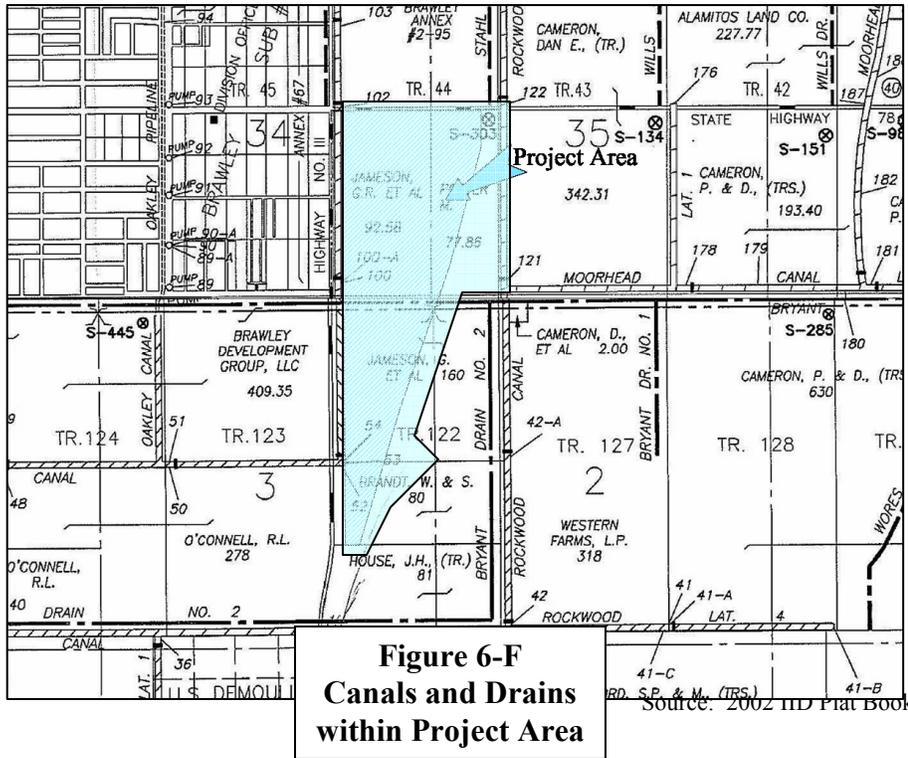
IVTA conduit shall be required for schools/public facilities for fiber optics. The exact needs to service the Rancho-Porter Community are unknown. With build-out of this community, no negative impacts to existing services have been identified.

6.5.4 Agricultural Canals and Drains

Agricultural water delivery canals and drains exist within Rancho-Porter (See **Figure 6-G**). The Rockwood Canal and Best Canal are located adjacent to the project site. The Bryant Drain splits the property into north and south along what will be Malan Street. The Rockwood and Best Canals deliver Colorado River water within the project area and to surrounding agricultural fields. The Bryant Drain is designed to capture and deliver agricultural run-off to the New River. These canals and drains are dedicated easements to the Imperial Irrigation District (IID) for the sole purposes of agricultural use.

Current IID policy requires urban development to underground or abandon existing IID facilities. Typically undergrounding requires that either a drain or canal is piped underground within a dedicated easement to IID specifications. The sizes of pipes for canals and drains that are undergrounded vary depending on the capacity of the current delivery system. In some cases drainage facilities and their easements are abandoned through the mapping process by IID, once abandoned, they become piped as part of a jurisdiction’s urban storm drain facility, which eventually discharges the water runoff into the nearest IID agricultural drain. Funding for canal undergrounding is often an added cost to the development which is eventually passed on to the future property owners.





6.6 Community Facilities

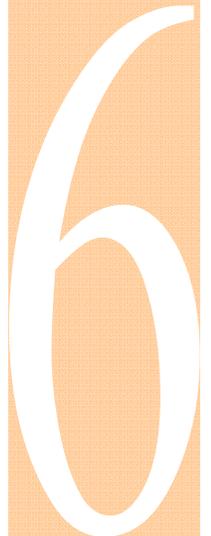
The Rancho-Porter Community will not contain a school site, police station, or fire station but will be required to meet any requirements from these agencies.

6.6.1 Schools

Brawley Schools shall provide educational services for the Rancho-Porter Community; the nearest school sites are directly west of the project. **Table 6.6** calculates the projected school children generated by the Rancho-Porter Community.

Development within the community shall contribute to the costs of providing the additional school facilities and services through payment of development impact fees to the Brawley Schools (as authorized by California Government Code Sections §65995 et seq.). Residential development within Rancho-Porter shall also be required to pay developer fees pursuant to Education Code Sections 17620 et seq.

Table 6.6: Projected Student Population				
	Dwelling Units		Students Generated	
	w/o	w/	w/o	w/
Elementary School			574	500
Junior High School	1,255	1,093	165	144
Senior High School			326	284
Total	1,255	1,093	1,065	928
Note: w/o =without commercial overlay, w/ with commercial overlay				



6.6.2 Library

The City of Brawley owns and operates a library facility in Plaza Park; this facility serves the entire City of Brawley. The library is an 8,000 square foot facility that provides services such as books, multi-media, and inter-library loan services. The current library is located a mile and a half to the west of the project site on Main Street.

The current City standard for library building space is 0.7 square feet per resident. This means that the City is currently deficient approximately 7,700 square feet. The build-out of Rancho-Porter will create a need of an additional 2,561 square feet if the commercial overlay is not used or 2,242 square feet if it is.

The library will soon expand with a new location at the corner of I Street and Eastern Avenue. This new location will be located within the 35,000 square foot joint community facility and will also increase the size of the library by approximately 1,000 square feet.

6.6.3 Parks

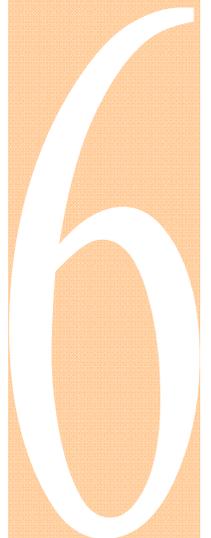
As new development occurs in the City, impacts of development will be assessed on the existing park system. The city will then require the dedication of parkland, payment of an in lieu fee, or both as a condition of new residential development pursuant to the Quimby Act. If the parkland proposed is not added during the design of the multi-family the developer may be required to pay in lieu fees.

Rancho-Porter shall provide seventeen (17) acres of parkland, both neighborhood and mini-parks. The mini-parks shall service smaller populations, and the neighborhood park will service the entire community. The neighborhood parks will provide a variety of recreational opportunities to the residents of Rancho-Porter. This park may incorporate the following active recreational uses:

- Children's play area: including tot-lots
- Tennis/racquetball courts
- Baseball/softball and football/soccer areas
- Basketball/volleyball areas
- Swimming pool

The recreational uses of the park shall not be restricted to the uses cited. In addition, paved footpaths, grading, and landscaping shall be included.

The City of Brawley has a performance standard of 1 staff member for every 10 acres of developed parkland. According to the 2007 SAP, "Existing maintenance staffing levels are not adequate and would require 4 additional maintenance staff positions to meet the standard." Upon build-out of Rancho-Porter an additional 2 staff members would be required.



6.6.4 Retention Basin Park

A retention basin's primary function is to provide storage for precipitation during a 100-year flood, although 99% of the time it is used as open space. According to the City of Brawley's General Plan, retention basins may be utilized for recreational uses, where appropriate. Ultimately, any recreational use permitted in a public park is also allowed in a dual-use retention basin. The hierarchy of uses mentioned above in the slope section must be kept in mind, but overall, dual-use basins are intended to be fully functional recreational facilities.

The only recreational facilities that must be sited with care are swimming pools. Pools and their attendant facilities must not be located in any area where there could be a chance of storm water contamination. Storm water run-off must not be allowed to flow into a swimming pool, since this could jeopardize the public's health.

6.7 Emergency Services

6.7.1 Fire Protection

The City of Brawley Fire Department provides fire suppression, protection and emergency medical services within city limits. The City has one Fire station located on the west side of the railroad tracks on the corner of Main Street and North 8th Street. The city is currently making provisions to provide a substation to be positioned on the east side of the railroad tracks to ensure adequate response times. This station would provide services to the Rancho-Porter community (See **Figure 6-H**).

Build-out of the current planning are will require that a permanent station be built to services the entire community. The increased distance will put a strain an existing services and will require more staff in addition to the new station. This subdivision will not include a substation but shall pay any current fees required by the City for fire protection. Sources for the fire station can come from general tax, parcel tax, motor vehicle license fee, and development impact fees and exactions.

The City maintains a performance standard of 1 firefighter per 1,000 residents, however current staffing meets a minimum of .48 firefighters per 1,000 residents. The Brawley Fire Department currently maintains a staff of 22 firefighters of which 12 are full time and 10 are called paid reserves. Upon build out of the Rancho-Porter the City will need to increase staff by 4 firefighters.

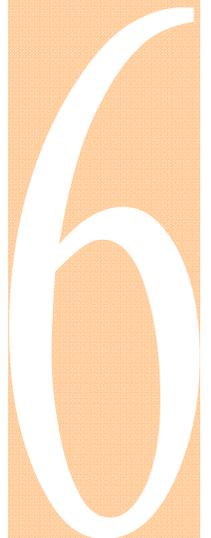


Table 6.7: Fire Department Estimates						
	Population	Fire Fighters		Paid Reserves	Main Station (sq. ft.)	Fire Substation (sq. ft.)
		Minimum	Required			
Current	25,216	12	25	10	10,149	0
2010	29,525	14	30	16	14,881	11,480
2015	34,606	17	35	18	17,441	11,480
2020	39,622	19	40	20	19,969	22,960
2025	44,427	21	44	23	22,391	22,960
2030	49,036	24	49	25	24,714	22,960

6.7.2 Law Enforcement

The City of Brawley currently maintains one police station located at the corner of Main Street and 3rd Street, approximately 2 miles west of the Rancho-Porter project site. The Brawley Police Department has 35 sworn officers and 13 non-sworn personnel. The performance standard for staffing is 1.50 sworn officers per 1,000 residents. Upon build-out of Rancho-Porter an additional 5 to 6 officers will be required.

The Rancho-Porter site will not contain a police station, but funding for the station can come from general tax, parcel tax, motor vehicle license fee, and development impact fees and exactions.

Table 6.8: Police Department Estimates				
	Population	Police Officers	Police Station (sq. Ft.)	Patrol Cars
Current	25,216	35	11,800	12
2010	29,525	44	15,914	12
2015	34,606	52	18,653	15
2020	39,622	59	21,356	17
2025	44,427	67	23,946	19
2030	49,036	74	26,430	21

6.8 Other Services

6.8.1 Transit Services

Transit facilities shall be located along Main Street adjacent to the commercial area. Transit facilities are essential to support higher density land uses and the expected population growth of the Imperial Valley. The site location shall be coordinated with Imperial County Transit and all facilities shall meet their requirements. In addition, bus turnouts should be provided at every stop. For further information see **Chapter 5**.

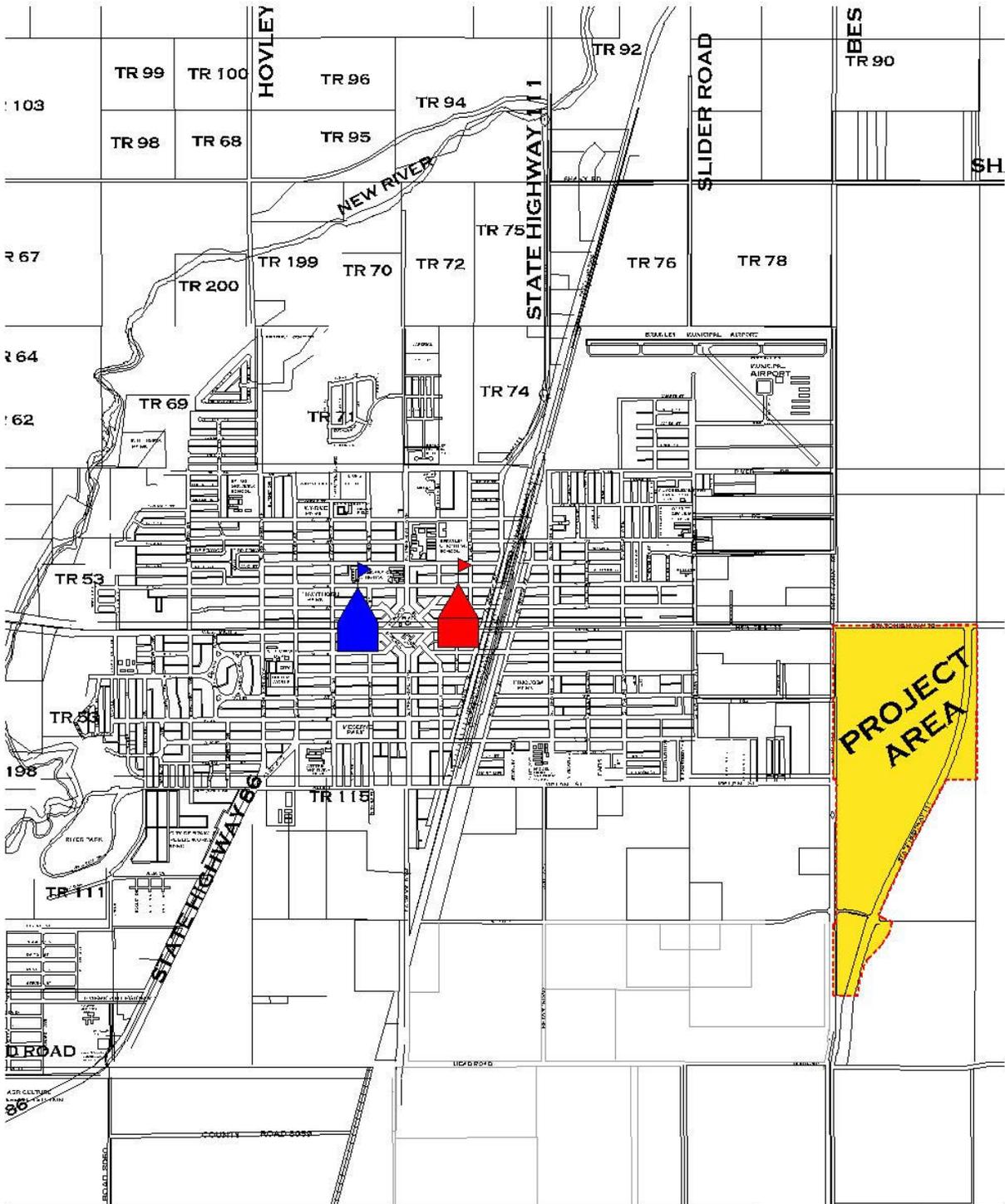


6.8.2 Solid Waste

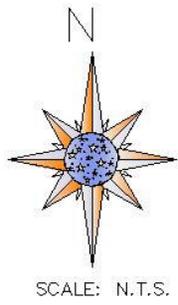
Solid waste collection and disposal is contracted through Allied Waste. The collected waste is deposited in a private landfill that is located east of the City of Imperial. The Imperial Landfill has adequate capacity to accommodate the City's growth for the next ten years. However, Imperial County is seeking a new site to build a landfill.

Currently, the County's Public Works Department and the County Integrated Waste Management Plan are examining future possible landfill site locations. Once a suitable site has been identified, reserving the potential future landfill site may help to prevent encroachments by incompatible surrounding land uses. The use of buffer zones around existing landfills and the preservation of areas suitable for expansion for these sites may avoid the more difficult and time consuming task of developing a new landfill location. As a consequence, protecting existing sites from incompatible encroachments is critical.

According to the United States Environmental Protection Agency (EPA), one person produces approximately 4.6 pounds of waste per day. The Rancho-Porter Community at maximum build-out will have a residential population of 3,659 people without the overlay or 3,203 with the overlay which equals about between 14,733.8 and 16,831.4 pounds of trash produced daily. This translates to some where between 5.38 and 6.14 million pounds of solid waste produced annually depending on the land uses.



LEGEND	
	FIRE STATION
	POLICE STATION
	PROJECT AREA



**FIGURE 6-G
EMERGENCY SERVICES**