Imperial Center Subdivision
Preliminary Infrastructure Study

In an unincorporated area of the County of Imperial, State of California

Presented to:

The Imperial County Planning Department
Imperial County Courthouse
939 West Main Street
El Centro, California 92243

Prepared by:

Development Design & Engineering, Inc.

May 5, 2006

A. PROJECT DESCRIPTION AND SETTING

1. Project and Site Description:

The proposed project is a mixed-use 77.64-acre commercial development. The project site is bounded by Yourman Road on the west, Heber Road on the south, Abatti Road on the north and the Alder Drain on the east. Reference is made to the Tentative Subdivision Map for this project titled “Imperial Center Subdivision“ A copy of the tentative map is included in the map portion of this study. The project is to be developed in phases.

The site is located east of the unincorporated community of Heber. The project site lies outside the boundaries of both the Heber Urban Area Plan and the “HPUD Expanded Sphere of Influence Area of the Heber Public Utilities District”. However, HPUD’s master water and sewer plans make provisions for providing water and sanitary sewer services. The Imperial Center Specific Plan proposes to annex the Specific Plan Area into both the Heber Urban Area and HPUD’s Expanded Sphere of Influence Area.

Additionally, other basic utilities including storm drain and electrical services are available to the project through the Imperial Irrigation District. Specific services are addressed later in this study.

2. Land use:

The project site is suitable for the proposed use as evidenced by similar commercial developments along Highway 111 that exist relatively near the site including the Wal-Mart/Toys R Us complex on the northerly city limits of Calexico.

The project site is zoned A2-SPA and is currently under agricultural production. Adjacent properties are zoned consistent with existing uses. The property to the immediate south is a mixed zoned of C2N-SPA and A2G-SPA. The properties to the immediate east and north (all existing farmlands) are all zoned as A2 and A3 respectively. The properties to the west are zoned A2G-SPA.

B. PUBLIC FACILITIES EVALUATION

This document outlines a plan to provide public facilities and infrastructure to the Imperial Center. Currently, the Heber Public Utility District (HPUD) is not able to provide future water service to the Imperial Center Specific Plan Area. However, this document will outline three distinct plans that are able to be implemented at any time, assuming the financing is in place, to provide future water services to the Imperial Center. This document also briefly discusses several different financing options that the Imperial Center may pursue to implement this public facilities plan.

The Imperial Center Specific Plan proposes three different alternatives to providing the development within the specific plan area with sewer and water services. The alternative the developers of Imperial Center will select will depend on developer goals.

1. Existing and Planned Ultimate Sanitary Sewer Service Facilities

A. Existing Sanitary Sewer Facilities:

No sanitary sewer services currently exist on the project site. The nearest point of connection to existing services includes:

1) A manhole located in Rockwood Avenue adjacent to the HPUD Sanitary Sewage Treatment Plant.

B. Project Proposed Sanitary Sewer Facilities:

1) Alternative One

The sanitary sewer improvements proposed for Alternative One are to include a local collection system consisting of gravity flow lines located in the streets, Yourman Road, of the proposed Imperial Center Subdivision. A 12" gravity flow line is to run along the west side of the project site to provide service to the areas south of the project site as they are developed.

An on-site (self-serving) treatment facility will be provided. The facility is to be purchased and owned by the landowner (with HPUD approval). The landowner will pay for maintenance; however, HPUD will operate the on-site facility. HPUD and the landowner will enter into an operating agreement that will specifically detail responsibilities and liabilities associated with the operating of the plant.

a. Type of Facility Needed

The following information was assessed to address sewer treatment facilities for the Imperial Center. The following information is based on treatment for up to 75,000 Gallons/Day:

i. 10,000 S.F. Building

ii. Sand/Rock Filter

iii. Estimated installation cost is $8.50/Gal treated = $637.500

iv. Add ozonation to effluent that will meet disinfection criteria of title 22 reclaimed water for irrigation - add $1.50/Gal for this upgrade

v. Effluent Quality = 2 mg/l BODs & suspended solids

vi. Power Consumption 55 to 60 KWH/Day (about $4.50/day)

b. Location

Lot 3 of the project area will be the temporary location of the sewer facility.

c. Sewage Discharge

i. It is assumed that 80 percent of the water supplied to a connection is sent to the sewer systems. Based on that assumption, the sewer flow for such areas will be approximately 40 gallons per person per day, while peak flow is 2 times the average flow, therefore:

ii. Average Flow: (40 p/ac x 40 gd/p) /(24hrs x 60 min) = 1.11 gpm/ac.

iii. Peak Flow: 1.11 gpm/ac x 2 = 2.22 gpm/ac.

iv. Sewer discharge required for the 77.64-acre parcel is 2.22 gpm/ac x 77.64 = 172.36 gpm.

Exhibit 1 provides a graphical detail of the proposed Alternative One.

2) Alternative Two

HPUD would provide sewer services to the Imperial Center in Alternative Two. Alternative Two proposes to extend single project specific sewer lines to the Imperial Center project.

Like Alternative One, the sanitary sewer improvements proposed for Alternative Two are to include a local collection system consisting of gravity flow lines located in the streets, Yourman Road, of the proposed Imperial Center Subdivision. A 12" gravity flow line is to run along the west side of the project site to provide service to the areas south of the project site as they are developed.

Specifically, the area to be developed by the project site is to be served by:

i. Installing a pump station with 2 pumps on the Imperial Center.

ii. Installing a 12 inch sewer force main from the Imperial Center to the Wastewater Treatment Plant (along

Correll Road and Rockwood Road crossing Highway 111 underneath).

Exhibit 2 provides a graphical detail of the proposed Alternative Two.

3) Alternative Three

HPUD would provide sewer services to Imperial Center in Alternative Three. The proposed infrastructure would include improvements that are included, as a full-buildout, in the Heber Public Utility District Service Area Plan.

The sanitary sewer improvements proposed for Alternative Three are to include a local collection system consisting of gravity flow lines located in the streets, Yourman Road, of the proposed Imperial Center Subdivision. A 12" gravity flow line is to run along the west side of the project site to provide service to the areas south of the project site as they are developed.

Specifically, the area to be developed by the project site is to be served by:

i. Installing a pump station with 2 pumps.

ii. Installing a 12 inch sewer force main from the lift station to an intermediate point along Correll Road (between Pitzer Road and Highway 111), continuing with a 30 inch sewer main to a point at Correll Road and Pitzer Road, then along Correll Road to the Wastewater Treatment Plant.

Exhibit 3 provides a graphical detail of the proposed Alternative Three.

C. Effects on Existing Sanitary Sewer Facilities:

No negative effects are expected on the existing facilities due to the following facts:

1) The Imperial Center is included in the Heber Public Utility District's Service Area Plan. This plan has provided for a plan that will enable HPUD to expand their services without negative impacts to their existing facilities. The plan indicates that the Imperial Center will be built-out between the dates of 2004-2008. It is clearly the intention of the Heber Public Utility District to serve this project.

2) HPUD currently has sufficient capacity to support the project with sewer services if sewer lines are installed as indicated above in Alternative Two and Alternative Three.

3) The landowner will be ultimately liable for any penalties for the operation of the Imperial Center sewer plant as outlined in Alternative One. HPUD will only be on the sewer plant permit as an operator of the plant. As stated above, an operating agreement between the landowner and HPUD will define any and all liability and risk exposure to HPUD for operating the sewer plant.

4) Planned construction of sanitary sewer infrastructure for the project is to be in accordance with HPUD instructions.

2. Existing and Planned Ultimate Water Service Facilities

A. Existing Water Facilities:

Some existing water services currently exist on the project site and include:

1) According to the HPUD director an 8" water line is located in State Highway 86 which terminates near Pitzer Road. Also, according to HPUD this line is to up-graded to a 12" line within the next year. Note that the proposed 12" line is not consistent with the 24" water line requirements of the Heber Public Utilities – "Water Master Plan – Water Transmission Pipelines".

2) A 12" water line located in Correll Road which terminates at a point just west of the Southern Pacific Railroad R/W. Note, 12" line is consistent with the requirements of the Heber Public Utilities – "Water Master Plan – Water Transmission Pipelines".

B. Project Proposed Water Facilities:

1) Alternative One

Alternative One provides for a plan to accommodate the Imperial Center water demands. This alternative calls for the Imperial Center Specific Plan area to be annexed into the Heber Public Utility District service area.

The water plant will be located in Lot 3 in the northern section of the project. It will be located adjacent to the sewer plant. The water plant will be located an appropriate distance from the sewer plant as determined by the Heber Public Utility District and State of California. The following is a summary of the plan to construct and operate a water plant within the Imperial Center Specific Plan Area:

i. Total area of the water facility will be approximately four acres.

ii. Water Plant building (50' x 40').

iii. Potable Water Tank Storage (600,000 gallons)

iv. The water plant will contain two water ponds with a total volume of 874,528 gallons.

v. Peak fire capacity = 2,000 gallons per minute for a four (4) hour duration plus domestic.

vi. Potable Water Pumps: 2,000 Gallons per Minute @ 80 psi

vii. Raw Water Irrigation Pumps: 200 Gallons per Minute @ 60 psi

The minimum and maximum potable water use for the project is estimated to be 100,000 gallons per day (gpd) and 200,000 gpd respectively, irrigation water is an additional 37,5000 and 70,000 gpd respectively. For planning purposes 200,000 was assumed to be the average day water demand for the project. This estimate represents the high side of water usage should be reevaluated as development proceeds to determine if some facilities proposed could be reduced in size. Table 1 provides the water use factors used to estimate project flows.

Water Use Factors		
LAND USE	**MINIMUM**	**MAXIMUM**
Potable	1250 GPD/AC	2500 GPD/AC
Irrigation	500 gpd/ac	1000 gpd/ac

Table 1-Water Use Factors

Peaking factors of 2 and 4 were used to estimate maximum day and peak hour demands respectively.

The water distribution system was sized to provide a 2,000 gpm fire flow under maximum day demands with a residual pressure of no less than 20 psi or no more than 10 psi pressure drop anywhere in the system under peak hour demands, whichever is greater.

Water storage, treatment and pumping facilities will all be located on on-site. The source of water for the project will be Imperial Irrigation district's All American Canal. Storage for the project will be kept in a potable water tank and raw water reservoir, then the All American Canal. The potable water reservoir will hold two average day's storage plus fire flow requirements. The raw water reservoir will hold seven and a half days storage requirement.

Water will flow by gravity to the raw water reservoir and will be pump to the water treatment plan when needed. The treatment plant is proposed to be a package system, consisting of modular units, where each unit contains a rapid mix tank, flocculation tank, settling basin and a filter. The modular unit concept will allow the treatment plant to be constructed incrementally, as needed.

Once water passes through the treatment plant, it will flow by gravity to the treated water storage tank. A potable water booster pump station will pump water from the treated storage tank to the water distribution system.

The distribution system will have a 12 inch diameter pipe looped within the project which will allow the project to be phased while still maintaining the infrastructure necessary to provide fire flow.

Design and operations of the water treatment facilities, storage reservoirs, and distribution systems will conform to guidelines from the following:

i. California Department of Health Services
ii. County Department of Health Services Environmental Health
iii. Air Pollution Control District
iv. Department of Water Resources Division of Safety of Dams
v. Insurance Services Office
vi. National Fire Protection Code

Water facilities discussed in this plan are preliminary and may be re-evaluated as development proceeds. Additional water facility options may be proposed and approved as part of the tentative mapping process. For example, smaller pipes may be used if originally anticipated water demands are less than anticipated.

Exhibit 1 provides a graphical detail of the proposed Alternative One. Table 2 provides an engineers estimate for potable water demand for Imperial Center.

i. Reclaimed Water Imperial Center

In an effort to conserve water at the Center, this Alternative will use reclaimed water for all landscaping on site. Standards shall meet County requirements. As an alternative, the Imperial Center management may wish to undertake landscaping irrigation with nearby agricultural water.

2) Alternative Two

HPUD would provide water services to Imperial Center in Alternative Two. Alternative Two proposes to extend single project specific water lines to the Imperial Center project. This

alternative would include upgrading the capacity of HPUD's water plant.

As stated above, this alternative would have a single project specific eight inch water line extended from an existing point of connection to Imperial Center. Two pump stations, one for both sewer and water, would be utilized in this alternative. It would not include a looped infrastructure water lines. Specifically, the area to be developed by the project site is to be served by:

i. Installing an 8 inch water line along Rockwood Road from the existing point of connection (approx. 600 ft. south of Correll Road) to Correll Road, then along Correll Road to the Imperial Center (crossing Highway 111 underneath).

ii. Connecting to a potable water storage tank.

iii. Installing a pump station with 3 pumps and accessories.

Alternative Two would provide water to the Imperial Center during peak hours using water that will be stored in an 800,000 gallon water tank. This tank will be located in Lot 3 on the tentative map. HPUD would replenish the tank during off-peak hours. Fire pressure and water availability would be sufficient to satisfy all fire protection needs.

Alternative Two is estimated to cost $2.3 million for infrastructure improvements. HPUD has stated that they intend to upgrade their water treatment plant. These improvements may be financed by a variety of mechanisms. Community Facility Districts (CFD's) or developer fees with reimbursement agreements may be used to finance these improvements.

The demand for water from the Imperial Center will increase in Alternative Two from Alternative One because the Imperial Center will not be able to use recycled water for irrigation purposes. For this reason, water demand for irrigation purposes will increase by 40,186 gallons per day.

Exhibit 2 provides a graphical detail of the proposed Alternative Two. Table 2 provides an engineers estimate for potable water demand for Imperial Center.

3) Alternative Three

HPUD would provide water services to Imperial Center in Alternative Three. The proposed infrastructure would include improvements that are included, as a full-build out, in the Heber Public Utility District Service Area Plan.

The HPUD would upgrade its water plant capacity under this alternative. This alternative would also include a looped water infrastructure system. Specifically, the area to be developed by the project site is to be served by:

i. Installing a 20 inch water pipe from the point of connection on Correll Road and Pitzer Road (where Heber Meadows project will leave the water line) to the Imperial Center (crossing Highway 111 underneath).

ii. Installing a 12 inch water pipe along the west side of Highway 111, from Correll Road to Heber Road/Highway 86, continue the water line along Highway 86 from west side of Highway 111 to the existing water line on Highway 86 and Pitzer Road.

iii. Extend the 12 inch water line along Highway 86 from west side of Highway 86 to the Imperial Center (crossing Highway 111 underneath).

Alternative Three is estimated to cost $2.4 million for infrastructure improvements. HPUD has stated that they intend to upgrade its infrastructure. These improvements may be financed by a variety of mechanisms. Community Facility Districts (CFD's) or developer fees with reimbursement agreements may be used to finance these improvements.

Like Alternative Two, the demand for water from the Imperial Center will increase in Alternative Two from Alternative One because the Imperial Center will not be able to use recycled water for irrigation purposes. For this reason, water demand for irrigation purposes will increase by 40,186 gallons per day.

Exhibit 3 provides a graphical detail of the proposed Alternative Three. Table 2 provides an engineers estimate for potable water demand for Imperial Center.

Engineers Estimate for Potable Water Demand for Imperial Center								
Facility	**Area**	**Occupancy ft^2/ Person**	**People/Unit**	**Gallons/day per capita**	**Average Gallons/ day**	**Usage Hours**	**Peak Flow Factor**	**Peak Gallons /min**
Information Exhibit Rest Rooms	15,000 ft^2	30	500	10	5,000	6	3	42
Wholesale Outlet Mall Restrooms, Interior Landscaping, Food Service Facilities	460,000 ft^2	30	15,333	3	46,000	10	2	153
Multiplex Cinema Restrooms, Food Service	83,000 ft^2	14	5,929	3	17,786	6	3	148
Hotel 200 Rooms Rooms, Laundry, Interior Landscape, Janitorial Services, Banquet Services	135,000 ft^2	200	675	52	35,000	11	3	159
Hotel/Plaza Restaurant Restrooms, Kitchen	10,000 ft^2	15	667	30	20,000	12	3	83
Plaza Auction Court Restrooms, Janitorial	95,000 ft^2	30	3,167	9	28,5000	6	3	238
Convenience Market/Gas Restroom, Kitchen, Food Service	37,000 ft^2	30	1,233	6	7,400	12	2	21
Retail Pads (eleven) Restrooms, Kitchens	55,000 ft^2	30	1833.33	10	18,333	12	2	51
Total of all Above			29,337		**178,019**			895

Table 2-Engineers Estimate for Potable Water Demand for Imperial Center

C. Effects on Existing Water Facilities:

No negative effects are expected on the existing facilities due to the following facts:

1) The Imperial Center is included in the Heber Public Utility District's Service Area Plan. This plan has provided for a plan that will enable HPUD to expand their services without negative impacts to their existing facilities. The plan indicates that the Imperial Center will be built-out between the dates of 2004-2008. It is clearly the intention of the Heber Public Utility District to serve this project.

2) The landowner will be ultimately liable for any penalties for the operation of the Imperial Center water plant as outlined in Alternative One. HPUD will only be on the water plant permit as an operator of the plant. As stated above, an operating agreement between the landowner and HPUD will define any and all liability and risk exposure to HPUD for operating the sewer plant.

3) HPUD will have the sufficient capacity and the capability to be able to continue to support the project. As indicated above, HPUD is currently planning to expand its plant. If this does not happen, Imperial Center will implement Alternative One to receive water services.

4) Planned construction of water pipeline transmission infrastructure for the project is to be in accordance with HPUD's master plan.

3. Temporary Septic and Leech Field System

Sewage treatment will be scaled down for Phase A by allowing temporary septic tank and leach field systems to be installed at the temporary wastewater treatment plant site as well as the lift station site in the western basin. Phasing is discussed in more detail in Chapter 9, Phasing. This system will be temporary until the infrastructure from HPUD is extended to the project site or the packaged plant system can be constructed. All septic tank and leach field systems will be installed in with approval from and in accordance to the County of Imperial Environmental Services Department.

Each septic system will be sized to handle approximately 25 thousand GPD. Once one or both of these temporary systems reach their capacity, transition into a packaged plant or first phase pond-based wastewater treatment system will be implemented at the permanent treatment plant site thus terminating the use of both of the temporary facilities. Collection and conveyance pipelines will be installed concurrently with the initial backbone roads and as more fully described in the appropriate final engineering improvement plans.

4. Existing and Planned Ultimate Storm Drainage Service Facilities

A. Existing Storm Drainage Facilities:

A countywide drainage and flood control manual has been prepared and is currently under review by the Imperial Irrigation District. As of the date of this writing, the countywide drainage and flood control manual has not been adopted. In the absence of a formal policy, the I.I.D. as the lead agency in drainage and flood control in Imperial County has had as a standing policy, the limitation of drainage from subdivisions to a single 12" outlet line into IID facilities. The resultant is that on-site retention basins exist on the majority of commercial/industrial and residential developments within the county and cities in Imperial Valley including the subdivisions adjacent to the project site. This has been the local practice for at least the last 25 years.

Existing I.I.D. drainage facilities currently available to the project site include:

1) The Imperial Irrigation Alder Drain is located along the eastern boundary of the project site.

B. Ultimate Storm Drainage Facilities:

No specific recommendations or requirements could be found in applicable documents the project site; Recommendations in the area generally state that developers should continue the local practice of designing site specific detention basins that outflow to IID facilities. However, some local agency staffs have made a determination that it may be in their best interest to pursue the concept of “Regional Detention Basins” that ultimately outflow to IID facilities. One such “Regional Detention Basin” being considered at present is located along the Strout Drain in Calexico.

C. Project Proposed Storm Drainage Facilities:

As stated above, local policy has been to allow for site specific detention basins that outflow to Imperial Irrigation District facilities. Therefore, at present, on-site detention basins/parks have been proposed for this project.

D. Effects on Existing Storm Drainage Facilities:

Preliminary engineering calculations for the sizing of on-site detention basin located on the project site are attached to this study. More detailed calculations may be required by the Imperial Irrigation District prior to granting of an encroachment permit for ultimate delivery of drainage flows to their facilities.

5. Existing and Planned Ultimate Electrical Service Facilities

A. Existing Electrical Service Facilities:

Some electrical services currently exist on or near the project site. The nearest points of connection to existing services include:

1) The Imperial Irrigation District provides electrical services to the surrounding properties via overhead and underground power lines.
2) Overhead power lines run along and Abatti Road.

B. Ultimate Electrical Service Facilities:

Ultimate electrical services requirements include:

1) No specific recommendations or requirements could be found in applicable documents the project site,

C. Project Proposed Electrical Service Facilities:

Proposed electrical services improvements include:

1) Overhead and underground lines are to be installed as directed and requested by agreement with the Imperial Irrigation District.

D. Effects on Existing Electrical Service Facilities:

Effects on electrical services facilities are to be determined and evaluated by the Imperial Irrigation District Power Department and any adverse effects identified and mitigated to the satisfaction of the I.I.D.

6. **Traffic Service Facilities**

A. Existing, Ultimate, Proposed and Effects on and for Traffic Service Facilities:

A Traffic Impact Study has been prepared by Dahl, Robins and is attached to this study. Additionally, an addendum to this traffic study was completed last year by Linscott Long & Greenspan. They are currently in the process of completing another addendum. This addendum will be submitted to for your review when it is completed.

C. SUMMARY

1. **Analysis of Existing, Proposed and Ultimate Infrastructure conditions and requirements and Effects on Infrastructure by project:**

A. Summary:

Adequate infrastructure exists and/or can be constructed such that the project site can be developed as proposed by the enclosed Tentative Map. Further, no significant impacts on were identified as effecting the existing infrastructure that could not be mitigated.

Several financing options may be pursued to implement the public facilities and infrastructure plan outlined above. Developer fees, Community Facilities Districts or private developer financing may be used to finance the infrastructure projects detailed above. No financing will come from HPUD or fees from HPUD's current customers.

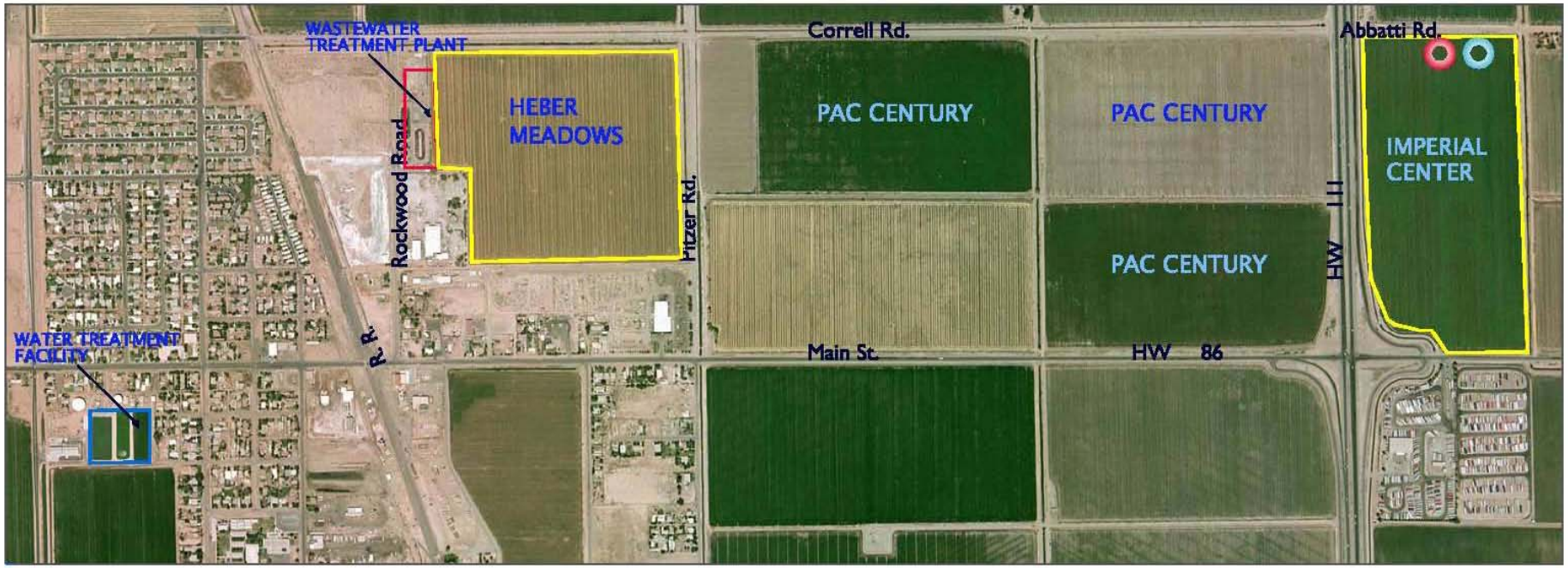
Development Design & Engineering, LLC

Ken Cluskey
Project Manager

Enc: (1) Tentative Tract Map

Cc: file

IMPERIAL CENTER UTILITY ALTERNATIVES



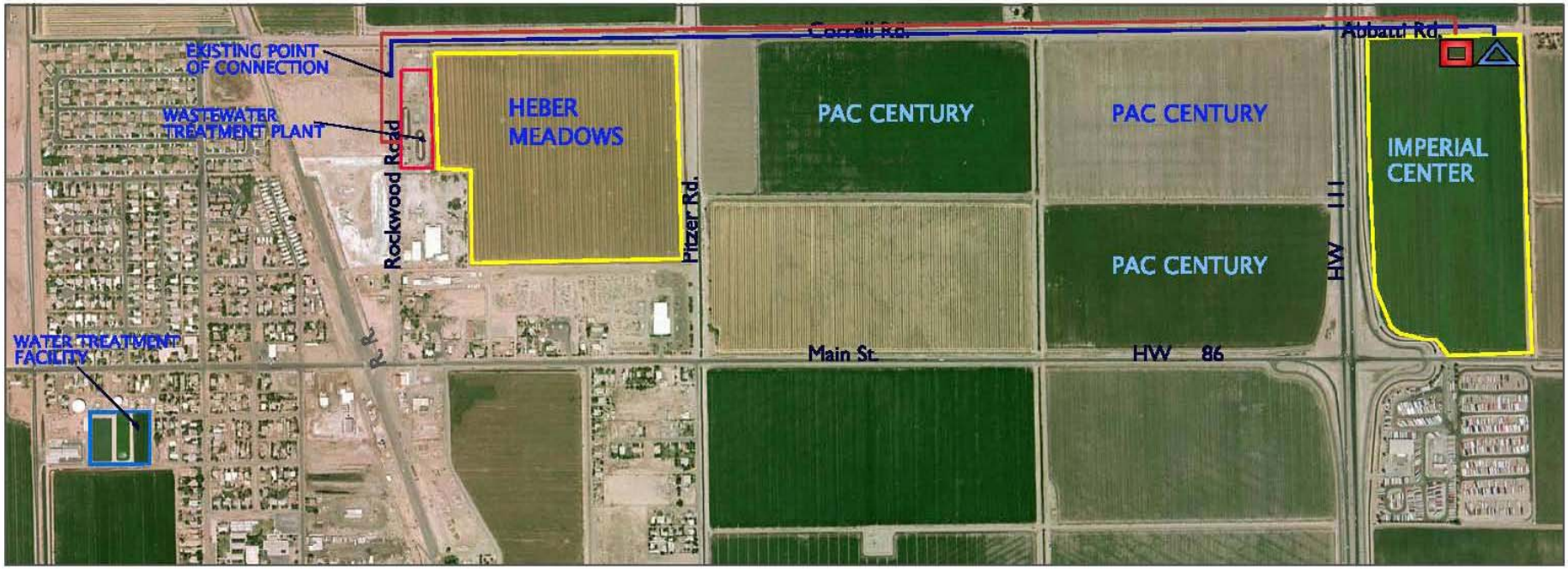
LEGEND

- PROPOSED ON SITE WASTEWATER TREATMENT PLANT
- PROPOSED ON SITE WATER TREATMENT PLANT

EXHIBIT NO. 1

Exhibit 1 - Alternative One - Sewer & Water System Plan

IMPERIAL CENTER UTILITY ALTERNATIVES



LEGEND

WATER SYSTEM

PROPOSED 8 INCHES LINE

PROPOSED WATER STORAGE TANK AND PUMP STATION

SANITARY SEWER SYSTEM

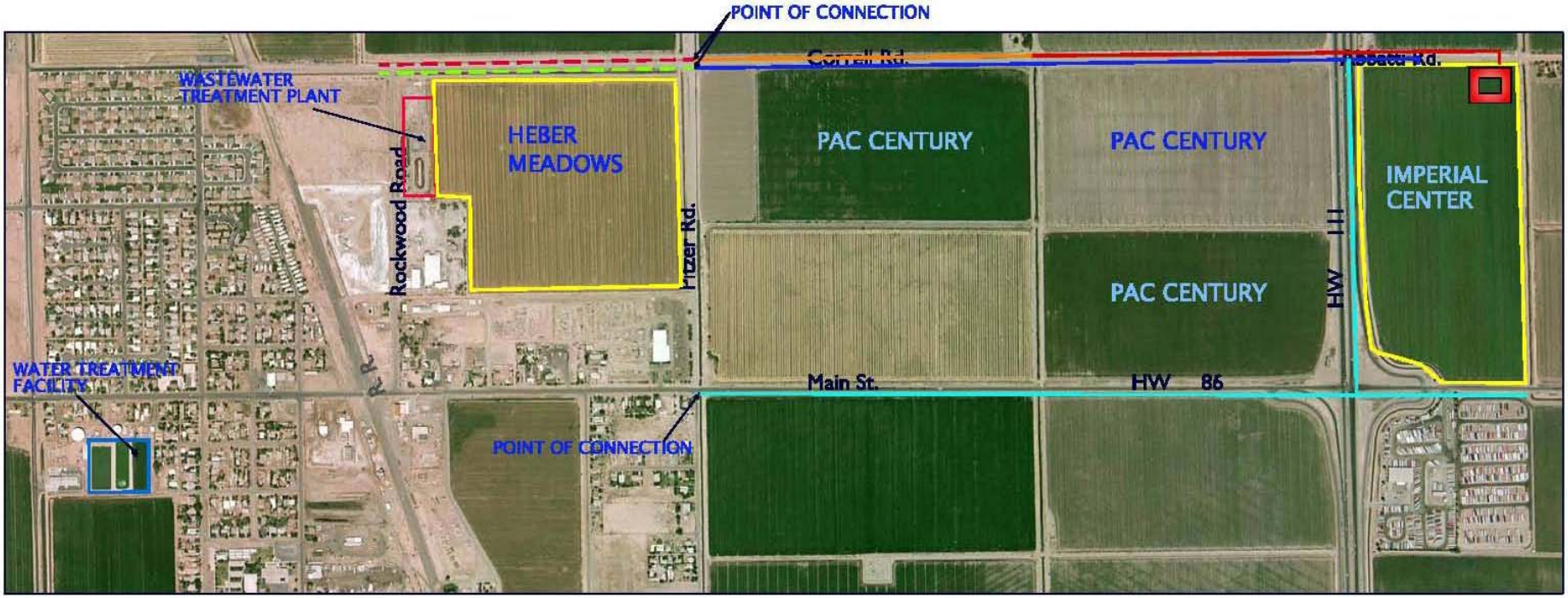
PROPOSED 12 INCHES FORCE MAIN

PROPOSED SEWAGE PUMP STATION

EXHIBIT NO. 2

Exhibit 2 - Alternative Two - Sewer & Water System Plan

IMPERIAL CENTER UTILITY ALTERNATIVES



LEGEND

WATER SYSTEM

- FUTURE 20 INCHES LINE
- PROPOSED 20 INCHES LINE
- PROPOSED 12 INCHES LINE

SANITARY SEWER SYSTEM

- FUTURE 30 INCHES LINE
- PROPOSED 30 INCHES LINE
- PROPOSED 12 INCHES FORCE MAIN
- PROPOSED SEWAGE PUMP STATION

EXHIBIT NO. 3

Exhibit 3 - Alternative Three - Sewer & Water System Plan