# Technical Infrastructure Study Otay Mesa Community Plan Update

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Prepared for: City of San Diego 1222 First Street San Diego, California 92101

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## Acronyms

City	City of San Diego
d/D	depth to diameter ratio
du/gac	dwelling units per gross acre
EIR	Environmental Impact Report
FCF	flow control facilities
gpcd	gallons per capita per day
gpd/ac	gallons per day per acre
Metro	Metropolitan Sewerage System
mgd	million gallons per day
OMCP	Otay Mesa Community Plan
OMTS	Otay Mesa Trunk Sewer
OVTS	Otay Valley Trunk Sewer
District	Otay Water District
RWCWRF	Ralph W. Chapman Water Reclamation Facility
SBWRP	South Bay Water Reclamation Plant
SDCWA	San Diego County Water Authority
SDG&E	San Diego Gas & Electric
ТМ	technical memorandum
WRMP	Water Resources Master Plan

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## 1.0 Introduction

The Otay Mesa community is a dynamic and rapidly developing area that encompasses approximately 9,300 acres in the southeastern portion of the City of San Diego (City). The community is bordered by the San Ysidro and Otay Mesa-Nestor communities on the west, the City of Chula Vista and the Otay Valley Regional Park on the north, the County of San Diego on the east and the US/Mexico border and the City of Tijuana on the south. It is envisioned that Otay Mesa will be a major employment center and home to a future population of 51,329 people. The City is currently updating the Otay Mesa Community Plan (OMCP), originally adopted in 1981, and the Otay Mesa Development District Ordinance zoning regulations. The intent of the update is to establish a framework for future development that will raise the standard of expectations for Otay Mesa and meet the housing demand projected for the City. The preferred land use proposal (Project) has been presented to the community and the City is proceeding with planning elements based the proposed Project.

The updated OMCP provides a long-range, comprehensive policy framework for growth and development in Otay Mesa over the next 20 to 30 years. Guided by citywide policy direction contained within the General Plan (adopted by the City Council on March 8, 2009), the updated community plan identifies a land use strategy with new land use designation proposals to create villages, activity centers and industrial/employment centers along major transportation corridors, while strengthening cultural and business linkages to Tijuana, Mexico via the Otay Mesa Port of Entry, as well as other enhancements to the existing planning area. The OMCP is consistent with the City's General Plan and includes the following nine elements: Land Use and Community Planning; Mobility; Urban Design; Economic Prosperity; Public Facilities, Services and Safety; Recreation; Historic Preservation; Noise; and Housing.

The purpose of this technical study is to provide a summary of wet utility (water, sewer and recycled water) requirements under the Project for the development of the OMCP Update Program Environmental Impact Report (EIR). The Project is being compared to the No Project alternative to determine what additional infrastructure may be required to support the proposed changes in land use. The No Project alternative is based on currently adopted master planning documents that conform to the 1981 OMCP. The project location shown in **Figure 1**. The OMCP Planning Area falls entirely within the municipal boundary of the City and the City is responsible for sewer service for the three drainage basins within the OMCP: Valley City, City East, and City West. However, for water and recycled water service, nearly half of the OMCP is within the purview of Otay Water District (District). The District's service area encompasses the eastern portion of the OMCP and a small notch on the north side of the OMCP. The maps showing the No Project land use plan and the Project are included as **Figures 2 and 3**, respectively.

The currently adopted master planning documents for the OMCP Planning Area include:

- 1999 South San Diego-Otay Mesa Water Study,
- 2004 Otay Mesa Trunk Sewer Master Plan and Alignment Study,

- 2010 Otay Water District Water Resources Master Plan Update (revised 2013),
- 2009 Otay Mesa Trunk Sewer Refinement and Phasing Report
- 2009 Otay Master Plan Optimization Baseline Report

These documents and their associated certified environmental planning documents provide a benchmark for infrastructure planning in the OMCP. However, some of the design standards used in the master planning documents are out of date and the population/density assumptions have changed. So, in order to compare the Project with the No Project alternative, the infrastructure requirements for the No Project alternative had to be re-evaluated to conform to the City's current water, sewer and recycled water design guides and the current population/density assumptions, as referenced herein. Most notable, the water and sewer forecasts from the 1999 South San Diego-Otay Mesa Water Study (1999 Study) and the 2004 Otay Mesa Trunk Sewer Master Plan, respectively, were conservative and subsequently revised in more recent studies. The 2009 Otay Master Plan Optimization Baseline Report (2009 Baseline Report) revised facility improvement phasing as compared to the 1999 Study and this study recommends that as facilities are designed for future development that the City update pump station sizing capacity needs for the Princess Park and Ocean View Hills pump stations based on the revised water use noted in the 2009 Baseline Report.

This technical study identifies impacts and improvements necessary to provide potable water, recycled water, and sewer service for the OMCP Update under the No Project condition as well as the Project.



#### **Project Location**

Figure 1

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## 2.0 Existing Infrastructure and Planning Documents

Since the adoption of the 1981 OMCP, master planning documents and improvement projects have been developed for the area. This section provides a summary of the current infrastructure within the OMCP area and the currently approved master planning documents for water, sewer, and recycled water facilities.

## 2.1 Existing Water Facilities and Planning Documents

Water service to the OMCP is provided by two agencies: the City serves the western portion of the planning area, and the District serves the eastern portion, generally east of Heritage Road. Both agencies are members of the San Diego County Water Authority (SDCWA), which is responsible for importing water to the San Diego region. In this southern part of the region, the SDCWA delivers both potable and raw (untreated) water via the Second San Diego County Aqueduct.

Raw water delivered via Pipeline No. 3 and locally collected water in the City's Lower Otay Reservoir are treated at the City's Otay Water Treatment Plant (WTP) and is the City's primary supply in this area.

Pipeline No. 4 delivers potable water to the District and is the District's primary supply. The District recently negotiated an agreement with Helix Water District to provide for a water supply delivery of 12 mgd on-peak, and 16 mgd off-peak. The District anticipates transitioning its use of the Helix Water District supply to more of a baseload use at delivery rates of up to its 16 mgd off-peak entitlements. The District will reduce its use of the SDCWA Pipeline No. 4 FCF connection (Otay 13 FCF), while maintaining full redundant capacity in these connections.

The following paragraphs describe both the City's and the District's existing water facilities. **Figure 4** provides a schematic of the potable water system hydraulic profile.

#### City Existing Water Facilities

The water treated at the 40-mgd Otay WTP is conveyed westerly via two pipelines. The 54-inch diameter Otay Third Pipeline and the 40-inch diameter Otay Second Pipeline both parallel the north side of Otay River Valley and connect to the South San Diego Reservoir. The South San Diego Reservoir is a 15 million gallon reservoir that is used as a control point for the downstream hydraulic gradeline in the South San Diego water system. This reservoir feeds the Otay Second Pipeline and the South San Diego Pipelines No. 1 and No. 2.

The South San Diego Pipelines include 6-miles of parallel 33-inch and 48-inch diameter transmission mains extending from the South San Diego Reservoir west to Interstate 805 and serves the South San Diego-Otay Mesa area. This pipeline feeds the Otay Mesa Pump Station (7,550 gpm), located off of Otay Valley Road, which pumps water to the Otay Mesa 680 Pressure Zone serving the Brown Field area of Otay Mesa. An emergency intertie with the

District is located along the south side of Otay Mesa Road, west of Heritage Road, and has a capacity of approximately 5,000 gpm.

Water facilities within the 680 Zone include a 24-inch water line extending from the Otay Mesa Pump Station south in Otay Valley Road and Heritage Road to Otay Mesa Road. The 24-inch pipeline extends west in Otay Mesa Road. A 30-inch pipeline extends north from Otay Mesa Road along Ocean View Hills Parkway to the Ocean View Hills Pump Station, which, along with the Princess Park Pump Station, is also supplied by the South San Diego Pipelines. While the three pump stations all serve the Otay Mesa area, the Otay Mesa Pump Station is the primary facility because it receives water from a higher pressure zone and is more energy-efficient to operate.

In 1999, the *South San Diego-Otay Mesa Water Study* (1999 Study) was developed to provide water master planning for the region. Based on the 1994 City Water Design Guide, the study recommended two additional pump stations to serve the developing Otay Mesa area. The construction of the two pump stations has been completed: the Princess Park Pump Station provides 380 gpm of capacity to pump water from the 490 Zone west of I-805 to the Princess Park Development and the Ocean View Hills Pump Station provides 2,000 gpm of capacity to pump water from the 490 Zone along Ocean View Hills Parkway to serve the Ocean View Hills community. These pump stations were designed for future capacity upgrades as the Otay Mesa area developed. The 1999 Study also determined that no new storage would be required within the 680 Zone.

Based on projected land uses for future development, the 1999 Study estimated an ultimate average water demand of 12.68 mgd for the Otay Mesa service area and recommended a backbone piping network, ranging in size from 12-inch to 24-inch diameter pipes, within the 680 Zone.

In 2009, the City retained Optimatics to prepare the *Otay Master Plan Optimization Baseline Report (*2009 Baseline Report), which reviewed the hydraulic performance of the Otay Water Treatment Plant service area in response to future (2030) demands and emergency outages. The report considered replacement of aging infrastructure in the OMCP area and recommended priority replacement or upgrade projects to address system deficiencies.

The 2009 Baseline Report used population projections from SANDAG Series 11 data to prepare potable water demand projections through 2030. For the OMCP Planning Area, the 2009 Baseline Report projected an average demand of 5.09 mgd, which is inconsistent with the 1999 Study due to changes in demand methodology and updated development projections for the area. The 2009 Baseline Report evaluated the City's facilities based on current approved land uses and the City has referred to the facility improvement recommendations when developing their CIP project list. This study will use the analysis and recommendations of the 2009 Baseline Report as the basis for the No Project condition.



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#### **District Existing Water Facilities**

The District receives potable water from Pipeline No. 4 of the Second San Diego County Aqueduct (Second SD Aqueduct) that are owned and operated by SDCWA. Pipeline No. 4 delivers potable water treated at the Metropolitan Skinner WTP located in Riverside County. Pipeline No. 4 is the District's primary supply system. SDCWA has multiple flow control facilities (FCFs) or connections to Pipeline No. 4 that feed into the District's water system. During normal operations, most of the District's potable demand is currently met with water from Pipeline No. 4 at FCF 13. The District anticipates transitioning its use of the Helix Water District supply to use up to 16 mgd of off-peak entitlements

There continues to be slow absorption of industrial land on Otay Mesa in the City and County of San Diego. The transmission and distribution system is fairly robust, in that many of the pipelines were originally constructed to serve large agriculture demands.

The eastern portion of Otay Mesa that lies within the District is served by the 870 Pressure Zone. Water to this area is provided from the District's 571-1 Reservoir, which has a capacity of 36.7 million gallons. The 13,400 gpm 870-1 Roll Pump Station pumps water, via parallel 30-inch transmission mains, from the 571-1 Reservoir to the 870-1 Reservoir, which has a capacity of 11 million gallons. Water is then transported via a 30-inch pipeline south in Alta Road and connects to a network of pipelines ranging in size from 30-inch to 8-inch serving development in eastern Otay Mesa.

The District's 2010 Water Resources Master Plan Update, revised 2013 (2010 WRMP) established water demand criteria within the District based on historic water demands as well as industry standard water use criteria. Based on approved land uses, represented by the No Project scenario, the area within the OMCP was assumed to be zoned primarily for industrial uses and the District used an industrial water demand factor of 893 gallons per day per acre (gpd/ac).

The 2010 WRMP was revised in 2013 to include recently approved and adopted developments. The 2010 WRMP also incorporated increased demands for the OMCP, acknowledging that the Project was the preferred alternative for the OMCP planning documents. The 2010 WRMP estimated ultimate potable demands for the OMCP Project within the District to be 4.70 mgd and recycled water demands to be 0.68 mgd.

## 2.2 Existing Sewer Facilities and Planning Documents

Existing sewer facilities in the study area include the Otay Mesa collection system, the Otay Valley Trunk Sewer (OVTS) system, and Metropolitan Sewerage System (Metro) facilities. The Metro facilities include the San Ysidro Interceptor, the South Metro Interceptor, and the City's wastewater treatment facilities. The proposed Otay Mesa Trunk Sewer (OMTS) collection system is planned to provide expanded sewer service to Otay Mesa to accommodate projected growth. These facilities, shown in **Figure 5**, are discussed in detail below.

#### **Otay Mesa Sewer Collection System**

Wastewater from existing development in the eastern portion of the Otay Mesa drainage basin is collected via sewer mains ranging in size from 6-inch to 33-inch and conveyed to a 30-inch main in Siempre Viva Road that flows westerly to the Pump Station 23T on Cactus Road. Existing wet weather flows from the eastern Otay Mesa Sewer Collection System averaged approximately 1.2 mgd in 2009.

Pump Station 23T has a capacity of 3.0 mgd and pumps the wastewater north in Cactus and Heritage Roads to the Otay Valley Trunk Sewer. This pump station and force main, which were installed in 1985 and funded by the Otay International Center (OIC) development under a reimbursement agreement with the City, were constructed as temporary facilities to be used until the proposed OMTS was constructed. The proposed OMTS is planned to redirect sewage collected at an upgraded Pump Station 23T east toward I-805, south of Otay Mesa Road, relieving capacity in the Otay Valley Trunk Sewer.

In 2004, the *Otay Mesa Trunk Sewer Master Plan and Alignment Study* (2004 Sewer Master Plan) was adopted by the City Council. Subsequent to the 2004 Sewer Master Plan, the *OMTS Project Refinement and Phasing Report* was prepared by Atkins (formerly PBS&J) (2009 OMTS Refinement Report). While the unit flow generation rates used in the 2004 Sewer Master Plan differ from those assumed in the 2009 OMTS Refinement Report, the ultimate projected flows from Otay Mesa are consistent with those used in City facility planning. The 2009 OMTS Refinement Report updated criteria for the phased development of a major trunk sewer system that would serve the Otay Mesa community and divert wastewater from the OVTS, which was reaching capacity.

The 2004 Sewer Master Plan used approved sewer studies for properties that were already built or had approved final or tentative maps. For undeveloped parcels, the 2004 Sewer Master Plan used an ultimate sewer flow generation rate of 5,000 gallons per day per net acre. This rate was understood to be the City's maximum density rate for industrial development, the predominant existing land use within Otay Mesa. Accommodating future sewer flows at this rate across every undeveloped parcel in Otay Mesa, however, implied huge infrastructure commitments. A compromise was reached with the City to also evaluate 1,500 gpd/ac which was representative of flows generated by similarly zoned, existing development within Otay Mesa. Planned phasing of the OMTS (designated as Phase 2 improvements) was therefore based on the buildout sewer flow of 1,500 gpd/ac, representing development of the area, under existing zoning conditions, at an average density.

The 2009 OMTS Refinement Report used existing District meter data to identify over 1,000 acres of industrial properties in City's eastern Otay Mesa area. The lot sizes served varied from less than one acre to 40 acres and water meter sizes ranged from <sup>3</sup>/<sub>4</sub>-inch to 4-inches in size. Annual water use data for these properties indicate that the average use for these properties is 800 gpd/ac. Of the 276 water meters evaluated, two thirds used less than 1,000 gpd/ac.

To calculate a sewage generation rate from water use rates, a standard average return to sewer percentage is applied. Typical return-to-sewer rates are in the range of 60 to 75 percent,

depending on the extent of outdoor uses of water. In the District's service area, irrigation meters are typically separate and were not included in the evaluation. Therefore, the higher return to sewer rate is assumed for this area and the average sewer generation rate was estimated to be 75 percent of the water demand of 800 gpd/ac, or 600 gpd/ac of sewage generation for industrial development.

The 2009 OMTS Refinement Report projected average flow rates for each land use category. Light and General industrial categories were used to identify land used for warehousing and distribution and manufacturing and processing. A typical sewer generation rate for these land use type is 865 gpd/ac, based on analysis of approved land uses from the 2009 OMTS Refinement Report. It was determined that border crossing facilities of similar size to the one proposed in Otay Mesa generated approximately 580 gpd/ac of wastewater. The mixed industrial and business park areas were comparable to those areas surveyed, including warehousing and distribution, which typically produce higher flows. Consequently, unit generation rates of 1,000 gpd/ac and 1,500 gpd/ac were assumed, respectively.

For buildout conditions, the OMCP Update flows will be based on the compromised unit generation rate of 1,500 gpd/ac. However, when site specific developments occur, site specific sewer studies will be required. The site specific sewer flows will be compared to the 1,500 gpd/ac compromise unit generation rate and, if required, the phasing of the OMTS will be adjusted/updated.

The OMTS wastewater collection system, as defined in the 2004 Sewer Master Plan and the 2009 OMTS Refinement Report, is a multi-phased pump station and pipeline project that will split flows between the Otay Valley Trunk Sewer and the San Ysidro Interceptor. The proposed phased system improvements required to complete the OMTS Project are shown in **Figure 5**.

Portions of the OMTS have been constructed and include the 27-inch to 30-inch diameter gravity sewer in Siempre Viva Road. Flows conveyed in this sewer are pumped on an interim basis to the existing Otay Valley Trunk Sewer system located north of the Otay Mesa Specific Planning Area via Sewer Pump Station 23T (SPS 23T) located at Siempre Viva and Cactus Roads. A 42-inch gravity sewer in Old Otay Mesa Road has been constructed and temporarily connects to an existing 10-inch sewer main in Old Otay Mesa Road until future upgrades are constructed.

The 2009 OMTS Refinement Report determined that the existing pump station SPS 23T can be expanded and retrofitted to accommodate up to 8 mgd of flows. Phase 1 proposed to bring SPS 23T into compliance with the City's Design Guide for permanent pump stations. This involves adding emergency storage and a redundant force main. The 8,000 foot redundant force main will be a 24-inch pipeline that connects to the effluent piping manifold within the pump station and be routed north on Cactus Road, connecting to Otay Valley Trunk Sewer at Heritage Road. This pipeline will accommodate flows through 2030 and has the ability to serve the residential component of the Otay Mesa Community Plan Update Project. The pipeline will pass beneath the planned extension of SR-905, which is currently under construction and anticipated to be in

place by 2015. Caltrans' design of the SR-905 across Cactus Road includes pipeline sleeves to accommodate additional force mains from SPS 23T.

The 2009 OMTS Refinement Report noted that SPS 23T is capable of pumping up to 3 mgd. By adding a single pump to this pump station and improving the electrical and control systems, the pumping capacity would be increased to 5 mgd, however, because of the Heritage Road bottleneck, the system would be limited to 4.3 mgd of capacity.

The threshold capacity of the OVTS system in Heritage Road is 4.3 mgd. By 2025, when flows from the SPS 23T approach 4 mgd, the OMTS must be operational so that flows can be diverted from the OVTS. These facilities include the diversion structure at the intersection of Otay Mesa and Heritage Roads, dual 24-inch force mains and a 24-inch gravity main that connects to the 42-inch gravity sewer that was constructed in 2005. The force main extension conveys the wastewater from the diversion structure west in Otay Mesa Road, through a low point in the road and back up to an elevation where the flow can continue by gravity. The existing 16-inch force main will continue to convey flows to the OVTS, while the new 24-inch force main extension will convey flows to OMTS via the gravity main in Otay Mesa Road, and allow the City the flexibility to divert flows from OVTS to OMTS at the diversion structure.

In order to provide full redundancy of the existing 8,000 feet of 16-inch force main, it is necessary to replace a portion of this force main with a 24-inch force main to improve the SPS 23T hydraulics and operation. Approximately, 3,600 feet of 24-inch force main is required to increase pumping capacity to 5 mgd. This also will require the installation of the fourth pumping unit.

To accommodate residential flows, the gravity main required size is a 24-inch pipeline. The continuing gravity main is routed west and then south beneath the SR-905 freeway expansion. Caltrans' design of the SR-905 in this location includes pipeline sleeves to accommodate this pipeline. Because the design of the SR-905 required significant cuts in the existing grade in this area, the gravity main is over 40 feet deep on the north side of SR-905 to match invert elevation of the connection point.



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#### CITY OF SAN DIEGO REGIONAL SEWER SYSTEM FIGURE 5

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The construction of a gravity main in Old Otay Mesa Road replaces an existing 10-inch pipeline that currently connects the south end of the 42-inch gravity main to the San Ysidro Interceptor Sewer collection system and will be required when flows exceed 4 mgd. This pipeline will convey flows from SPS 23T as well as flows from the City's south Otay Mesa area. In order to convey up to 12.5 mgd, the required pipeline diameter increases to a 30-inch pipeline. The connection to the San Ysidro collection system is anticipated to occur at Center Street. The existing pipelines beneath the I-805 freeway overpass in this location were determined to be sufficient to convey up to 12.5 mgd, thus no tunneling beneath the freeway and trolley tracks is required.

Phase 4 includes the addition of a new pump at the existing pump station and replacing the remaining section of 16-inch force main with a 24-inch force main to bring the total capacity of SPS 23T to 8 mgd to accommodate residential flows.

#### **Community Facilities District**

The Otay Mesa Trunk Sewer Refinement and Phasing Report recommended several sewer system upgrades in the Otay Mesa sewer basin to mitigate for capacity constraints in the near term due to contracted capacity and to meet increased flows through the year 2030. Figure 9 of this report illustrates the proposed sewer infrastructure designed to enhance pumping and conveyance capabilities from the City's Otay Mesa Sewer Pump Station 23T to the west to a connection to the existing San Ysidro Trunk Sewer. Completion of these projects would substantially complete the Otay Mesa Trunk sewer system and relieve capacity in Otay Valley. No improvements are recommended in the Otay Valley sewer system as that trunk system was built to handle build-out gravity flows.

Since the primary benefit area is development on Otay Mesa, both the County and City developers have joined forces to develop a financing option to ensure that backbone sewer facilities are constructed in a timely manner with development. As a result a task force or finance committee has been developed to work with a financial specialist and legal counsel and the City to implement an assessment district known as a CFD to collect property assessments to fund sewer system upgrades.

A CFD is a special district formed by a sponsoring local government agency for the purpose of financing the acquisition, construction, operation and maintenance of the public infrastructure benefiting the planned community. The CFD has the legal authority to levy and collect a special tax, to use that revenue to finance specified facilities and services, and to borrow money by issuing bonds or incurring debt to assist with financing the facilities.

Based on the committee's work to date approximately \$20 million in future capital upgrades have been indentified and confirmed by the City through the year 2030 to serve development in both the City and County.

#### Otay Valley Trunk Sewer System

The existing 27-inch OVTS conveys wastewater from the Otay Valley drainage basin from as far east as the Donovan Correctional Facility, west to the City's Metro system. This trunk sewer also temporarily conveys the wastewater generated in east Otay Mesa via SPS 23T and 48T, as described in the previous paragraph. The eastern portions of the OVTS were constructed and funded under reimbursement agreements with the City. It is operated and maintained by MWWD. The 7.3 mile long gravity main extends from Heritage Road, east along Otay Valley Road to I-805 and within existing roads north of the Otay River between I-805 and its connection to the South Metro Interceptor.

#### **Metro Facilities**

The Metro serves the Greater San Diego population of 2.3 million from 16 cities and districts generating an average of 175 million gallons per day (mgd) of wastewater. The system has region-wide treatment capacity of 255 mgd, and peak wet weather flows are currently approaching the peak system hydraulic capacity of 450 mgd. The MWWD treats the wastewater generated in the 450 square mile area, which includes the South Bay and Otay Mesa areas along the U.S.-Mexico International Border. The following sewer facilities are owned and operated by MWWD and are a part of the Metro Sewer Collection System:

- South Metro Interceptor Wastewater from the South Bay area is conveyed via Metro's 72-inch South Metro Interceptor north to the Metro's regional wastewater treatment facility, the Point Loma Wastewater Treatment Plant via Metro's Pump Station No. 2. The South Metro Interceptor collects wastewater from the San Ysidro Interceptor to the south, the Otay Valley Trunk Sewer to the east and a number of trunk sewers from the City of Chula Vista.
- San Ysidro Interceptor Metro's San Ysidro Interceptor collects wastewater from the South Bay area, west of I-805. The upstream end of the interceptor is located west of the I-5 and I-805 merge, just north of the border crossing. The 30 to 42-inch pipeline conveys wastewater north along the west side on I-5 to its connection with the South Metro Interceptor. The Grove Avenue Pump Station intercepts a portion of the wastewater flow from the San Ysidro Interceptor and redirects "skimmed flow" south to the newly operational South Bay Water Reclamation Plant (SBWRP) via a 30-inch force main. The gravity sewer main in Old Otay Mesa Road serves the western-most portion of the OMCP and delivers wastewater flows to the San Ysidro Interceptor.
- Point Loma Wastewater Treatment Plant The Point Loma Wastewater Treatment Plant is located at the tip of Point Loma on the ocean side of the entrance to San Diego Bay. It treats up to 175 mgd of wastewater from the entire Metro service area, including the South Bay and Otay Mesa drainage basins. The plant has an average treatment capacity of 240 mgd. The wastewater is treated to an advanced primary level and discharged via a deep ocean outfall. Flow from the South Bay is pumped to Point Loma via Pump Station No. 2, located on Harbor Drive near the airport.

South Bay Water Reclamation Plant – The SBWRP is located at the intersection of Dairy Mart and Monument Roads in the Tijuana River Valley, adjacent to the International Boundary and Water Commission's International Wastewater Treatment Plant. The SBWRP currently accepts approximately 8 mgd of wastewater conveyed via the Grove Avenue Pump Station for treatment and reuse. The plant has a design capacity of 15 mgd and treats the wastewater to a tertiary level for reuse. Excess secondary treated recycled water is disposed of via the South Bay Land and Ocean Outfall.

## 2.3 Existing Recycled Water Facilities and Planning Documents

The District currently serves recycled water to customers within its Central Area System, south of the Sweetwater Reservoir and west of the Otay Lakes Reservoirs from its 1.3 mgd Ralph W. Chapman Water Reclamation Facility (RWCWRF). The District also receives recycled water from the City's SBWRP serves customers within the City, District, and County of San Diego. Recycled water from the SBWRP is used by the D A schematic of the system's hydraulic profile is provided in **Figure 6**.

To serve the District's recycled water customers, Title 22 effluent from the RWCWRF is pumped 3.4 miles to two lined and covered reservoirs, the 12-mg 927-1 (Pond No. 1) and the 16.3-mg 927-2 (Pond No. 4). The recycled water pump station at the RWCWRF consists of 5 pumps and has a total capacity of 3,500 gpm with a firm capacity of 2,600 gpm. Firm capacity is defined as the total capacity less the capacity of the largest pump in the pump station. The largest pump is designated as a standby unit that is used as the backup pump unit in the event that any other units out of service. The 3.4-mile, 14-inch diameter force main delivers recycled water to the 927-1 and 927-2 reservoirs which have high water elevations of 944 and 927 feet, respectively, and provide forebay storage for the District's recycled water system.

A 20-inch recycled transmission main extends south from the two reservoirs approximately 13,000 feet to Otay Lakes Road. This 20-inch main supplies the recycled water to all the existing recycled water meters connected to the recycled water system. Additional transmission mains exist in Otay Lakes Road, Telegraph Canyon Road, EastLake Parkway, Hunte Parkway, East H Street and Olympic Parkway.

In 2007, the District completed a major transmission project that allows recycled water produced at the City's SBWRP to be conveyed to and distributed within the District. The recycled water pump station at the SBWRP pumps recycled water via a 30-inch transmission main to the District's 12-mg 450-1 Reservoir. This reservoir functions primarily as a supply regulating reservoir and pump station forebay for the 680-1 Pump Station, which provides recycled water to the 680 and 927 Pressure Zones within the Central Area. The 16.5-mgd 680-1 pump station is located at the 450-1 Reservoir site and pumps recycled water via a 16-inch transmission main to the 680-1 Reservoir. The 3.4-mg 680-1 Reservoir was constructed as a dual purpose land use effort and is located beneath the basketball courts at Sunset View Park in Chula Vista. The 927-1 Pump Station, with a capacity of 10.55 mgd, conveys water from the 680 PZ to the 927

PZ, via a 16-inch transmission main. At this time, there are no plans to provide recycled water service to the OMCP Planning Area within the City.

Otay Mesa is a growing part of the District service area with significant planned industrial development, including a third Border Crossing by the Federal Government. As part of their planning, developers in Otay Mesa have anticipated that recycled water would become available and have been constructing separate recycled water distribution pipelines within the systems for over twenty years. The District's *2010 WRMP Update* plans for expansion of the recycled water into the Otay Mesa area. Based on primarily industrial land use zoning for the area and using an average annual irrigation demand factor of 2.41 acre-feet per acre per year, the District estimated a recycled water demand of 1.5 mgd. It is the intent of the District to continue to construct the system of reservoirs, pump stations, and transmission mains that will incorporate these distribution pipelines into a complete delivery system. The District's eastern boundary. A new 4-mg 860-1 Reservoir would be located adjacent to the County's East Mesa Detention Center. These facilities were included in the District's 2010 Capital Improvement Program. **Figure 7** shows the ultimate recycled water facilities within the District.

The City currently has no plans to expand their recycled water distribution system within Otay Mesa. The City and District have an agreement that the District will provide recycled water service in their service area, which includes a portion of San Diego. The limits of the recycled water system will be based on what is economical to construct and operate as well as recycled water production from the SBWRP.

# **ATKINS**

H:\Waterres\011 San Diego\100008335 OMCPU\Report-Infrastructure\0491298-MP-RW-SystemSchematic.dwg 5/21/13

SOURCE: OTAY WATER DISTRICT



	1000
	900
$\frac{2}{27/680} = \frac{829}{4.0 \text{ MG}} = \frac{1}{860^{\circ}}$	800
(UTAT MESA SERVICE AREA)	700
	600
	500
	400
	300
E)	200
UCING STATION Æ (NCV)	100
OTAY WATER DISTRICT F WATER SYSTEM HYDF PROFILE SCHEMA	RECYCLED RAULIC TIC
FIGURE 6	
OMCPU Technical Infrastru	cture Study May 2013

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**ATKINS** 





FIGURE 7

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## 3.0 Description of the Project Land Use Plan

The OMCP Update defines land use types within six major categories: Industrial; Commercial; Residential; Parks/Open Space; Institutional; and Village Centers. As shown in **Table 1**, the currently adopted Community Plan, also known as the No Project alternative, is largely comprised of industrial and park/open space land uses. The City's proposed OMCP Update Project slightly reduces the amount of proposed industrial development and increases the amount of multi-family residential development, including the addition of a mixed use Village Center development concept.

Land Use Categories	No Project	Project
Residential	1,258 ac	757 ac
Single family detached	4,800 DU	4,273 DU
Multi-family and attached	7,600 DU	14,501 DU
Residential Areas w/ Village Centers		726 ac
Commercial	457 ac	317 ac
International Business and Trade (IBT)	0 ac	1,310 ac
Industrial	2,885 ac	1,116 ac
Institutional	1,027 ac	1,166 ac
Parks and Open Space	2,595 ac	2,910 ac
Right-of-Way	1,098 ac	1,019 ac
Total	9,32 <mark>0</mark> ac	9,320 ac

#### Table 1 Land Uses Associated with Proposed Alternatives

New land use designations in the Project are proposed to allow the establishment of industrial centers, mixed commercial and residential uses, and, where appropriate, residential uses near industrial uses. Modified industrial and commercial land use designations also are included that are similar to the industrial intensity found in the adopted community plan. The International Business and Trade (IBT) would be the dominant industrial land use in this scenario. Other features of the Project include:

- Increasing housing unit yield in the southwestern residential areas
- A distribution of land uses that provides sufficient capacity for a variety of uses, facilities, and services needed to serve Otay Mesa
- Distinct villages that include places to live, work and recreate
- A variety of housing types including workforce housing in close proximity to jobs
- Diversified commercial uses that serve local, community and regional needs
- Adequate institutional resources that serve the needs of the community
- A land use pattern that is compatible with existing and planned airport operations
- Border facilities that facilitate the safe and efficient movement of passengers and cargo

## 4.0 Development of Water Demand and Sewer Flow Projections

The OMCP falls entirely within the municipal boundary of the City and the City is responsible for sewer service to the entire area. However, for water and recycled water service, nearly half of the OMCP is within the purview of the District. This split requires the examination of planning criteria from both entities.

To project water and recycled water demands and sewer flows from new development, several types of planning criteria are typically defined: land use density criteria (dwelling units per acre); employment density criteria (employees per acre); population criteria (persons per dwelling unit); and unit flow generation criteria (gallons per person per day otherwise known as gallons per capita per day (gpcd)). In the following subsections, the City and District planning criteria are presented. Because the Project being proposed in the OMCP Update does not exactly match the land use categories defined in the City or District criteria, a methodology for applying these criteria to the OMCP is developed herein. Because the OMCP is such a large development within the City, existing adopted master planning documents are associated with it, and it lies within the boundaries of two water purveyors, standard planning criteria may not apply and local consideration is given when developing density criteria and unit water and sewer demands. These issues are examined below.

## 4.1 Water Planning Criteria

## 4.1.1 City Planning Criteria

The City Public Utilities Department has developed standard unit use factors for residential and employee designations. The unit use factors are presented in this document for the purposes of projecting water demands for the OMCP Update. The water demands for the City-served potion of the OMCP area are calculated as described below:

#### **City Residential**

Projected water demands for residential uses in the City water service portions of the OMCP will be calculated on a per person basis, using City Planning's housing projections (see below) and persons-per-household (PPH) data for Single Family Residential (SFR) and Multi-Family Residential (MFR) housing units in the OMCP area. The unit use factors represent the citywide average:

- SFR population: **150 gpd**
- MFR population: 90 gpd

PPH data will be set using City Planning's recent survey data. As part of the OMCP plan development process, the City had Source Point conduct a survey in the existing housing stock

in Otay Mesa and the Otay Ranch area to profile household sizes for both SFR and MFR units. The resulting profiles were:

- SFR PPH: **3.98**
- MFR PPH: **3.45**

#### City Non-Residential

Projected water demands for non-residential uses in the City water service portions of the OMCP are calculated on a unit use per employee basis. Employee counts are per City Planning's data sets. The unit use factor represents the citywide average:

Per employee: 60 gpd

SANDAG determined employment densities based on a regional average of employees per acre for each land use type and applied that to existing land uses and densities. City staff then utilized the employment rates provided by SANDAG to calculate the projected 2030 employment population estimates for the Project and the No Project alternative.

The OMCP Update contains land use designations that do not have associated SANDAG employment densities. City staff established density ranges for these designations as listed below:

- International Business and Trade: The International Business and Trade (IBT) land use designation combines uses permitted in both the Business Park and Light Industrial designations. The designation allows for single- and multi-tenant office, research and development, light manufacturing, and storage and distribution uses. In the Project, IBT designated lands cover a significant portion of the community, nearly 1,300 acres. The employment yield from the allowable uses varies significantly. Because there is no rate established for IBT in the Series 12 employment data, City staff established a blended rate based on the uses modeled in the traffic analysis.
  - IBT = 30 employees per acre, per City Planning analysis
- <u>Heavy Commercial</u>: The Heavy Commercial land use designation allows for retail sales, commercial services, office uses, and heavier commercial uses such as wholesale, distribution, storage, and vehicular sales and services.
  - Heavy Commercial = 16 employees per acre, per City Planning analysis

### 4.1.2 District Planning Criteria

Water use projections for the District-served portions of the OMCP area utilize the District's standard water projection methodology and unit use factors as contained in its 2009 Water Resources Master Plan (WRMP). The WRMP established unit use factors for single and multi-

family residential units, industrial, institutional and commercial land uses, and park irrigation uses, as summarized below:

- Single Family Residential = 500 gpd per dwelling unit
- Multi-Family Residential = 300 gpd per dwelling unit
- Commercial/Office = 1,785 gpd per acre
- Industrial = 893 gpd per acre
- Institutional = 1,785 gpd per acre
- Parks = 2,155 gpd per acre

The OMCP Update introduced a new land use designation, the IBT, which is made up of both industrial and commercial uses. As previously explained, the City determined that the IBT land use would have an employment density of 30 employees per acre. The District has requested that the City evaluate the IBT water demands within the District service area using the same methodology as the City, which applies a unit use factor to non-residential land uses of 60 gpd per employee:

■ IBT = 1,800 gpd per acre

### 4.2 Sewer Planning Criteria

Average wastewater flow rates are estimated by multiplying the gross acreage of one or more parcels by a characteristic unit generation rate corresponding to the existing or planned land use of the parcels. Previous planning studies for Otay Mesa have used standard generation rates specified in either the County or City's design guidelines.

Wastewater flows are highly variable for different types of industrial or commercial developments. For example, the wastewater generation rate for a warehouse is typically 500 gpd/ac or less, which varies greatly from the generation rate for a manufacturing facility, which may be as high as 5,000 gpd/ac. The previous 2004 OTMS Master Plan used a design factor of 5,000 gpd/ac for industrial land use. The 2009 OMTS Refinement Report used water billing data for similar properties in the Otay Mesa area, including neighboring properties served by the County of San Diego (County), to determine more realistic sewer generation factors. A compromise was reached with the City to also evaluate 1,500 gpd/ac which was representative of flows generated by similarly zoned, existing development within Otay Mesa. Planned phasing of the OMTS (designated as Phase 2 improvements) was therefore based on the buildout sewer flow of 1,500 gpd/ac, representing development of the area, under existing zoning conditions, at an average density.

The OMCP Update sewer flows will be based on the compromised unit generation rate of 1,500 gpd/ac. However, when site specific developments occur, site specific sewer studies will be required. The site specific sewer flows will be compared to the 1,500 gpd/ac compromise unit generation rate and, if required, the phasing of the OMTS will be adjusted/updated.

For the purposes of this study, the IBT land use in the Project will be evaluated at the Industrial generation rate of 865 gpd/ac. Residential demands are based on 80 gpcd for sewer and household density factors developed by the City (3.98 PPH for SFR and 3.45 PPH for MFR).

### 4.3 Recycled Water Planning Criteria

The *City Water CIP Guidelines and Standards Book 7 Recycled Water* does not define typical recycled water demand factors, but typical irrigation demands in the San Diego County area range from 2.0 to 4.5 acre feet per acre per year. In their 2010 WRMP Update, the District compares recycled water demand factors used in various local studies, as well as actual data. Based on their recycled water use data from 1992 through 2002, the District estimates that the average recycled water demand for all irrigation land use categories is 2.41 acre feet per acre per year (2,155 gpd/ac), except for golf courses, which use 4.0 acre feet per acre per year. In addition, the District also defines the percentage of each land use category to be irrigated. This percentage is applied to the gross acreages of each land use category, except for street, roadway or freeway landscaping where the actual landscape irrigation area is used. The percentages are defined in **Table 2**, below.

Land Use Category	% of Gross Acreage Irrigated
Multi-Family	15
Commercial	10
Industrial	5
IBT	10
Institutional	20
Park	100

 Table 2
 District Criteria for Irrigation Percentages

Source: District 2010 WRMP Update

Because the District has considerable experience in planning for and serving recycled water in this part of the County, these criteria are considered to be applicable to all of the OMCP Planning Area and are used in estimating recycled water demands in this report.

It should be noted that in using the City's criteria for potable water demand, the potential for recycled water is not considered. Therefore, any estimate of recycled water should be subtracted from potential potable water estimates when considering water supply issues for the community. Except for SFR land use, the District unit water demand does not include outdoor water use, assuming recycled water will be used. The City's unit demands for water do include outdoor water use.

## 5.0 **Projected Water and Sewer Demands**

Water and sewer demand criteria, as discussed in Section 4.0, was used for comparing the impact of the OMCP Project land use plan to the No Project condition. As directed by City and District staff, the OMCP criteria has been applied across the OMCP Planning Area according to water agency jurisdiction. This provides consistent and across-the-board estimates of water demand, which are appropriate for this level of planning. These projections are shown in **Tables 3 and 4**, below.

From these tables, a comparison of the master planning documents and the updated No Project alternative can be made. In **Table 3**, the comparison of water demand projections shows that the No Project scenario projects a total of 8.56 mgd of water demand for the OMCP. The Project estimates 10.95 mgd of water demand, or an increase of 2.39 mgd from the No Project alternative.

In **Table 4**, the comparison of wastewater flow projections are shown similar to potable water demand projections. When compared to the No Project alternative (10.18 mgd), the Project projections of 11.22 mgd estimate an increase of 1.04 mgd in wastewater flows.

To evaluate the differences in infrastructure associated with the Project demand projections in Section 6.0, the use of the 2030 projections was assumed to be a reasonable yet conservative long-term planning approach consistent with the adopted planning documents.

As the City currently has no plans to install recycled water infrastructure within the OMCP Planning Area, it is necessary to assume that potable water will be used for irrigation uses when evaluating the potable water distribution system for the No Project and Project land uses within the City. It is reasonable to assume that potable water will be initially used for irrigation until the recycled water distribution system is built and sufficient sewer flows are available to produce adequate supplies to meet the recycled water demands. Potable water demands for the District have been reduced to account for the potable water reduction factor when using recycled water for irrigation.

Count		Population	Unit Demand	Water Demand (mgd)	
No Project					
City					
SFR	4,800 units	19,102	150 gpd/person	2.87	
MFR	7,600 units	26,221	90 gpd/person	2.36	
Commercial/Office	207 acres				
Industrial	278 acres				
IBT	0 acres	11,112 employees	60 gpd/employee	0.67	
Institutional	982 acres				
Parks	64 acres				
City Total				5.89	
District					
SFR	0 units	-	500 gpd/DU	0	
MFR	0 units	-	255 gpd/DU	0	
Commercial/Office	250 acres	-	1,607 gpd/acre	0.40	
Industrial	2,607 acres	-	848 gpd/acre	2.21	
IBT	0 acres	-	1,620 gpd/acre	0.00	
Institutional	45 acres	-	1,428 gpd/acre	0.06	
Parks	0 acres	-	0 gpd/acre	0.00	
District Total				2.67	
Total No Project				8.56	
Project					
City					
SFR	4,273 units	17,007	150 gpd/person	2.55	
MFR	9,255 units	31,930	90 gpd/person	2.87	
Commercial/Office	175 acres				
Industrial	239 acres				
IBT	24 acres	13,758 employees	60 gpd/employee	0.83	
Institutional	946 acres				
Parks	97 acres				
City Total				6.25	
District					
SFR	0 units	-	500 gpd/DU	0	
MFR	5,246 units	18,099	255 gpd/DU	1.34	
Commercial/Office	142 acres	-	1,607 gpd/acre	0.23	
Industrial	876 acres	-	848 gpd/acre	0.74	
IBT	1,286 acres	-	1,620 gpd/acre	2.08	
Institutional	220 acres	-	1,428 gpd/acre	0.31	
Parks	61 acres	-	0 gpd/acre	0.00	
District Total				4.70	
Total Project				10.95	

#### Table 3 OMCP Update Projected 2030 Water Demands



	Count	Population	Unit Demand	Average Flow (mgd)
No Project				
City				
SFR	4,800 units	19,102	80 gpd/person	1.53
MFR	7,600 units	26,221	80 gpd/person	2.10
Commercial/Office	207 acres		1,500 gpd/acre	0.31
Industrial	278 acres		1,500 gpd/acre	0.42
IBT	0 acres	11,112 employees	1,500 gpd/acre	0.00
Institutional	982 acres		1,500 gpd/acre	1.47
Parks	64 acres		0 gpd/acre	0.00
City Total				5.83
District				
SFR	0 units	-	80 gpd/person	0
MFR	0 units	-	80 gpd/person	0
Commercial/Office	250 acres	-	1,500 gpd/acre	0.38
Industrial	2,607 acres	-	1,500 gpd/acre	3.91
IBT	0 acres	-	1,500 gpd/acre	0.00
Institutional	45 acres	-	1,500 gpd/acre	0.07
Parks	0 acres	-	0 gpd/acre	0.00
District Total				4.35
Total No Project				10.18
Project				
City				
SFR	4,273 units	17,007	80 gpd/person	1.36
MFR	9,255 units	31,930	80 gpd/person	2.55
Commercial/Office	175 acres		1,500 gpd/acre	0.26
Industrial	239 acres		1,500 gpd/acre	0.36
IBT	24 acres	13,758 employees	1,500 gpd/acre	0.04
Institutional	946 acres		1,500 gpd/acre	1.42
Parks	97 acres		0 gpd/acre	0.00
City Total				5.99
District				
SFR	0 units	-	80 gpd/person	0
MFR	5,246 units	18,099	80 gpd/person	1.45
Commercial/Office	142 acres	-	1,500 gpd/acre	0.21
Industrial	876 acres	-	1,500 gpd/acre	1.31
IBT	1,286 acres	-	1,500 gpd/acre	1.93
Institutional	220 acres	-	1,500 gpd/acre	0.33
Parks	61 acres	-	0 gpd/acre	0.00
District Total				5.23
Total Project				11.22

#### Table 4 OMCP Update Projected 2030 Wastewater Generation



## 5.1 Recycled Water Demands

Both the City and District produce recycled water for use in the Southern San Diego area. Currently, the District operates a 1.2-mgd reclamation plant and has an agreement to purchase up to 6 mgd of recycled water from the City. The City has the capability of producing up to 15 mgd of recycled water at its South Bay Water Reclamation Facility. The District's 2010 WRMP projects recycled water use within Otay Mesa and lays out a grid system of pipelines for service to the area. The City currently has no specific plans for constructing facilities to convey recycled water to its Otay Mesa service area; however, developers in this area will be conditioned by the City to install onsite recycled water facilities. Based on discussions with City staff, it was assumed that recycled water will be conveyed to the City's service area within the District's water service boundaries via the District's recycled water facilities.

**Table 5** provides a summary of irrigated acres and average day recycled water demands projected for the land use plans. The total estimated irrigated acres is 494 acres in the No Project alternative and 736 acres in the Project.

The District's 2010 WRMP included recycled water projections for the OMCP Update.

If recycled water use is assumed to be required by both the City and District in the OMCP area, the projected water demands for this area should be reduced accordingly. **Table 3** provided the projected potable water demands for the OMCP. The unit water demands used to project water demands included outdoor irrigation demands within the City service area; however, unit demands for areas within the District included accommodation for recycled water demands. If the projected water demands are reduced to accommodate for the projected recycled water demands, the required future potable water supply requirements for the OMCP could be reduced. **Table 6** provides a summary of potable water demands for each of the land use alternatives for the OMCP, assuming recycled water, not potable water, is used for outdoor irrigation demands.

As mentioned above, however, the potable water system for the City in this study was evaluated assuming that no recycled water supply was available.

	Gross Acreage	Percent Irrigated	Irrigated Acreage	Unit Demand	Recycled Water Demand (mgd)
No Project					
City					
SFR	1,027 acres	0%	0 acres	2,155 gpd/acre	0.00
MFR	231 acres	15%	35 acres	2,155 gpd/acre	0.07
Commercial/Office	207 acres	10%	21 acres	2,155 gpd/acre	0.04
Industrial	278 acres	5%	14 acres	2,155 gpd/acre	0.03
IBT	0 acres	10%	0 acres	2,155 gpd/acre	0.00
Institutional	982 acres	20%	196 acres	2,155 gpd/acre	0.42
Parks	64 acres	100%	64 acres	2,155 gpd/acre	0.14
City Total			330 acres		0.71
District					
SFR	0 acres	0%	0 acres	2,155 gpd/acre	0.00
MFR	0 acres	15%	0 acres	2,155 gpd/acre	0.00
Commercial/Office	250 acres	10%	25 acres	2,155 gpd/acre	0.05
Industrial	2,607 acres	5%	130 acres	2,155 gpd/acre	0.28
IBT	0 acres	10%	0 acres	2,155 gpd/acre	0.00
Institutional	45 acres	20%	9 acres	2,155 gpd/acre	0.02
Parks	0 acres	100%	0 acres	2,155 gpd/acre	0.00
District Total			164 acres		0.35
Total No Project			494 acres		1.06
Project					
City					
SFR	637 acres	0%	0 acres	2,155 gpd/acre	0.00
MFR	655 acres	15%	98 acres	2,155 gpd/acre	0.21
Commercial/Office	175 acres	10%	17 acres	2,155 gpd/acre	0.04
Industrial	239 acres	5%	12 acres	2,155 gpd/acre	0.03
IBT	24 acres	10%	2 acres	2,155 gpd/acre	0.00
Institutional	946 acres	20%	189 acres	2,155 gpd/acre	0.41
Parks	97 acres	100%	97 acres	2,155 gpd/acre	0.21
City Total			415 acres		0.89
District					
SFR	0 acres	0%	0 acres	2,155 gpd/acre	0.00
MFR	191 acres	15%	29 acres	2,155 gpd/acre	0.06
Commercial/Office	142 acres	10%	14 acres	2,155 gpd/acre	0.03
Industrial	876 acres	5%	44 acres	2,155 gpd/acre	0.09
IBT	1,286 acres	10%	129 acres	2,155 gpd/acre	0.28
Institutional	220 acres	20%	44 acres	2,155 gpd/acre	0.09
Parks	61 acres	100%	61 acres	2,155 gpd/acre	0.13
District Total			321 acres		0.68
Total Project			671 acres		1.57

#### Table 5 Average Day Recycled Water Demand Projection Comparison



			Potable Water		Reduced
	Count	Denulation	Demand	Recycled Water	Potable Water
No Ducio et	Count	Population	(mga)	Demand (mgd)	Demand (mgd)
City	4 000 11	10,100	0.07	0.00	0.07
SFR	4,800 units	19,102	2.87	0.00	2.87
MFR	7,600 units	26,221	2.36	0.07	2.29
Commercial/Office	207 acres				
Industrial	278 acres				
IBI	0 acres	11,112 employees	0.67	0.63	0.04
Institutional	982 acres				
Parks	64 acres				
City Total					5.20
District	Г	1	1		Г
SFR	0 units	-	-		0.00
MFR	0 units	-	-		0.00
Commercial/Office	250 acres	-	-		0.40
Industrial	2,607 acres	-	-	N/A	2.21
IBT	0 acres	-	-		0.00
Institutional	45 acres	-	-		0.06
Parks	0 acres	-			0.00
District Total					2.67
Total No Project					7.87
Project					
City					
SFR	4,273 units	17,007	2.55	0.00	2.55
MFR	9,255 units	31,930	2.87	0.21	2.66
Commercial/Office	175 acres				
Industrial	239 acres				
IBT	24 acres	13,758 employees	0.83	0.69	0.14
Institutional	946 acres				
Parks	97 acres				
City Total					5.35
District					
SFR	0 units	-			0.00
MFR	5,246 units	18,099			1.34
Commercial/Office	142 acres	-			0.23
Industrial	876 acres	-	]	N/A	0.74
IBT	1,286 acres	-			2.08
Institutional	220 acres	-	1		0.31
Parks	61 acres	-			0.00
District Total					4.70
Total Project					10.05

#### Table 6 Water Demand Projection Comparison with City Recycled Water Demands Deducted

## 6.0 Approach to Comparison of Utilities

In order to compare the Project with the No Project alternative, master planning documents were assumed to evaluate ultimate conditions under the No Project scenario. For each utility, existing and proposed infrastructure deficiencies and improvements were noted. Any identified improvements under the No Project alternative were subsequently considered as the minimum required improvements for the assessment of the Project. The identified impacts and improvements for the Project are defined as compared to the No Project alternative, not the adopted master plan documents.

As previously noted, the potable water system was analyzed using water demands without any reduction for potential recycled water supplies since irrigation of turf areas will most likely be irrigated using potable water until the recycled water distribution system is constructed to serve the OMCP area. The recycled water distribution system was evaluated independently and compared with the anticipated improvements associated with the proposed ultimate recycled water system, as provided by the District.

### 6.1 Water System Analysis

Assessment of the OMCP water distribution system involved the analysis of two independent water systems: the City system and the District system.

#### City Potable Water System

The City's Otay Mesa service area was evaluated and reviewed in the *Otay Master Plan Optimization Baseline Report* (Baseline Report, Optimatics, May 2009). Optimatics received a SynerGEE water model from the City, which was set up to run a 24-hour extended period simulation.

As previously described, the City's Otay Mesa service area is large and does not contain any storage outside the South San Diego Reservoir and the Otay WTP clearwells. Supply to this area comes from the Otay WTP and the area is served by three pump stations and several pressure reducing stations. Pump station capacity is considered to be the total pumping capacity of the pump station with the largest pump out of service. The pump stations include:

- Otay Mesa Pump Station (2) 695-gpm pumps, (3) 3,080-gpm pumps; 7,550 gpm capacity
- Ocean View Hills Pump Station (2) 1,000-gpm pumps, (1) 3,000-gpm pump; 2,000 gpm capacity
- Princess Park Pump Station (2) 380-gpm pumps, (1) 1,500-gpm pump not in service,
   (2) 3,100-gpm pumps not in service; 380 gpm current capacity

#### **District Potable Water System**

The District's water system model was updated in October 2008 as part of the 2008 WRMP and again in November 2010 as part of the 2010 WRMP Update. The model includes existing facilities and improvements anticipated to meet the District's ultimate water demands. The locations of the demands in the District model were grouped at just a few nodes throughout the system. The District model includes several planned water pipelines that are proposed to cross SR-125, SR-11, and SR-905 that are critical to the operation of the District water system. Based on conversations with the District, it is assumed for purposes of this analysis that these facilities will be installed prior to construction of these roadways, or sleeves will be installed when the freeways are built to allow construction of these mains to occur at a later date. The planned water distribution system, including the highway crossings, was used as the basis for evaluating the No Project condition and the Project.

For both the City and District potable water systems, the following design criteria was used as a guideline for determining potential improvement projects. However, specific recommended improvements were made based on engineering judgment to determine which pipe improvements would provide the greatest benefit to the system based on velocity, headloss per thousand feet, total headloss, location, and length of pipe.

Criteria	Value
Maximum Velocity	15 fps
Maximum Headloss per Thousand Feet	10 feet/1000 feet
Maximum Total Headloss	15 feet
Minimum Pressure	40 psi
Maximum Pressure	150 psi

 Table 7
 Potable Water Design Criteria

#### **No Project Analysis**

Both the City's Baseline Report and the District's 2008 WRMP included demands for the OMCP Update under the No Project alternative, which is based on currently approved land uses. The City's Baseline Report recommended the following backbone infrastructure improvements within Otay Mesa:

- A. Upgrade the Otay Mesa Pump Station to 11,500 gpm to meet ultimate demands. Additional capacity may also be installed at Ocean View Hills and Princess Park Pump Stations to meet the No Project demands of the OMCP Update, or an addition 1,000 gpm pumping capacity may be added to the Otay Mesa Pump Station.
- B. Install 12,380 feet of new 20-inch pipe between the South San Diego Reservoir and the Otay Mesa Pump Station or replace the 33-inch South San Diego Pipeline #1 with a new 48-inch pipe for redundancy.

C. Install 2,400 feet of new 24-inch pipe in Otay Mesa Road between Hawken Drive and Crescent Bay Drive to provide redundancy in Otay Mesa and allow the Princess Park pump station to supply the 680 PZ.

Additional developer-driven projects to improve service and provide redundancy in the Otay Mesa area are as follows:

- D. Install 2,080 feet of new 16-inch pipe to provide redundant service between Otay Mesa Road and Beyer Boulevard.
- E. Install 2,500 feet of new 16-inch pipe to extend service in Airway Road and provide redundancy in the 680 PZ. The City may upsize this pipe as part of the Otay Mesa Road 24-inch water main replacement project.

The identified impacts and improvements for Otay Mesa are in response to projected growth within the Otay Mesa service area as a whole and not specific to the increase in potable water demands from the OMCP Update. The identified water system improvements are shown on **Figure 8**.

In the District system, the 2008 WRMP did not identify pumping deficiencies within the OMCP area. The District has adequate pumping capacity to serve the OMCP under the No Project scenario. A 10-mg 870-2 Reservoir is recommended to be constructed to provide capacity for projected ultimate storage requirements. The proposed site for the 870-2 Reservoir is adjacent to the existing 870-1 Reservoir. Although portions of the buildout distribution system have yet to be constructed, the 2010 WRMP assumed these pipelines would be installed by developers. No upgrades to the sizes or locations of these pipelines are anticipated.

#### Project

The City's Baseline Report did not evaluate alternative demand scenarios for the OMCP area, such as the Project. In the District's 2010 WRMP, demands for the OMCP area were revised to include increased potable water demands from the Project.

The identified impacts and improvements for Otay Mesa under the No Project scenario are not capacity-based deficiencies. The Project will increase potable water demands in the City service area by only 0.36 mgd, which is not a significant increase to warrant transmission main upgrades. Any identified improvements under the No Project alternative are considered as the minimum required improvements for the assessment of the Project; installing an additional 750 gpm of pumping capacity at the Otay Mesa pump station would provide sufficient capacity to serve the additional demands of the OMCP.

The 2010 WRMP did not identify storage or pumping deficiencies under ultimate conditions in addition to projects identified under the No Project condition. The District has adequate storage and pumping capacity to serve the future Project demands of the OMCP. As new developments move forward, the District may require individual projects to submit detailed hydraulic studies.

### 6.2 Sewer System Analysis

The sewer collection system in the OMCP was analyzed in the 2009 OMTS Refinement Report using the InfoWorks computer software package (Wallingford Software, Version 4.5). InfoWorks is a dynamic modeling tool that computes the time-varying water surface profile in each reach of the modeled sewer, subject to diurnal wastewater loading and rainfall-derived inflow and infiltration. The model is capable of simulating fixed and variable speed pumps, diversions and other hydraulic structures. The OMTS model included the Otay Valley drainage basin and trunk sewer collection system, as well as the San Ysidro drainage basin and interceptor, up to the connection to the 72-inch South Metro Interceptor, as one integrated collection system. As part of the 2009 OMTS Refinement Report, the build out condition was modeled for the Otay Mesa area. Based on that model, new facilities and improvements to the existing collection system were recommended, as shown in Figure 9. A phased upgrade of the existing of SPS 23T was recommended so that additional capacity could be added as needed, as well as improvements necessary to meet the design guidelines for permanent pump stations. The phasing plan called for incremental capacity beginning with 4 mgd, increasing to 8 mgd at buildout capacity. It is anticipated that a new Otay Mesa sewer pump station will be required when the capacity at SPS 23T exceeds 8 mgd.

In order to evaluate the No Project and Project alternatives in this study, demand projections were compared to the projections and assumptions made in the 2004 Sewer Master Plan and 2009 OMTS Refinement Report.

#### No Project Analysis

The 2009 OMTS Refinement Report included sewer flows for the OMCP based on currently approved land uses, which is the basis for the No Project alternative. The 2009 OMTS Refinement Report recommended the following OMTS phased improvements:

- A. Upgrade SPS 23T from temporary to permanent status by adding 0.25 mg emergency storage and upgrade pumping capacity to 4.3 mgd (8 mgd build-out).
- B. Upgrade SPS 23T from temporary to permanent status by installing 8,000 feet of 24-inch force main from SPS 23T to Heritage Road.
- C. Install diversion structure to split sewer flows between the OMTS and the OVTS, which gives the City more flexibility in operating the system and defers costly improvements to the San Ysidro Trunk Sewer.
- D. Install 8,000 feet dual 24-inch force main along Otay Mesa Road from diversion structure to gravity sewer.
- E. Replace 3,600 feet of 16-inch force main with 24-inch force main from SR-905 to diversion structure.
- F. Install 2,800 feet of 20-inch gravity main along Otay Mesa Road from force main to existing 42-inch gravity main.

G. Install 5,000 feet of 24-inch gravity main from existing 42-inch gravity main to existing 24-inch San Ysidro Trunk Sewer.

In addition to the phased projects identified in the 2009 OMTS Refinement Report, two new sewer pump stations are still required to serve the Otay Mesa western area—the Bauchmann Sewer Pump Station and the South Otay Mesa Sewer Pump Station. The identified sewer system improvements are shown on **Figure 10**.

#### Project

The identified improvements under the No Project alternative are considered the minimum required improvements for the assessment of the Project. The increased flows from the Project will not require any additional capacity of SPS 23T beyond 8 mgd, as noted in the 2009 OMTS Refinement Report, but may alter the phased improvements for capacity at SPS 23T and build-out sizing of sewer pipelines.

- 3A. Increase emergency storage at SPS 23T to 0.50 mg.
- 3F. Upsize 20-inch to 20-inch gravity main along Otay Mesa Road from force main to existing 42-inch gravity main.
- 3G.Upsize 24-inch to 30-inch gravity main from existing 42-inch gravity main to existing 24-inch San Ysidro Trunk Sewer.



<sup>5/21/13</sup> LH SD Z:\Projects\IS\OMCPU\mxd\8335\_WaterImps\_IDd.mxd

# Water System Improvements

Figure 8

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**ATKINS** 

	N
	1,400
I	Feet
Existing	Sewer Mains
	Force Main
	Gravity
Phase P	ipeline
	Existing
	Phase 1
	Phase 2 (SPS)
	Phase 3
	Phase 4 (RES)
	Pumped
	Gravity
	Existing Pump Station

#### Phased OMTS System Improvements

Figure 9

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**ATKINS** 

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## 6.3 Recycled Water System Analysis

Recycled water service in the OMCP is planned to be provided by the District only. Although the City produces recycled water, it has no distribution system in the western side of the OMCP that lies within its service area. Because the City has no current plans to expand their distribution system in this area, recycled water service to the western side of Otay Mesa would likely require expansion of the District recycled water system to the west along Otay Mesa Road and then north and south along Ocean View Hills Parkway. When the South Bay Plant was constructed an agreement was formed between the District and the City whereby the District would serve City customers. Reclaimed water facilities are already in place in some areas within the northwest quadrant of the OMCP area, such as along Ocean View Hills Parkway; however, there is currently no distribution system in the western side of the OMCP area. Recycled water service to the western side of Otay Mesa Road. An agreement between the District and the City would have to be negotiated to provide transportation of reclaimed water in the Districts facilities should capacity ever become available.

The District's recycled water system model was updated as part of the 2010 WRMP. The model includes existing facilities and improvements anticipated to meet the District's ultimate recycled water demands as projected in their 2010 WRMP. The District model also includes several planned recycled water pipelines that are proposed to cross SR-125, SR-11, and SR-905 and that are critical to the operation of the District's recycled water system. Based on conversations with the District, it is assumed for purposes of this analysis that these facilities will be installed prior to construction of these roadways, or sleeves will be installed when the freeways are built to allow construction of these mains to occur at a later date. The planned recycled water distribution system, including the highway crossings, was used as the basis for evaluating the alternatives in this study.

#### No Project Analysis

The District's 2008 WRMP evaluated ultimate recycled water supply, storage, and pumping conditions, which would be comparable to the No Project scenario. The OMCP is within the District's 860 Pressure Zone (PZ), which will ultimately be supplied from a new 860-1 Reservoir located near the County Prison through planned 30-inch diameter transmission mains. The new 860-1 Reservoir is recommended to serve the 860 PZ and will be supplied directly through the 927 PZ from the north. The District's current CIP includes the 4-mg 860-1 Reservoir. Although the analysis in the 2008 WRMP notes a need for approximately 2 mg of additional storage, the ultimate capacity of the 860-1 Reservoir of 4 mg is recommended due to the potential variability of recycled water use in Otay Mesa. Recycled water use has been assumed for outdoor irrigation in the 2008 WRMP; however, industrial users could potentially increase recycled water demand in this PZ with indoor, dual-plumbed facilities.

It is possible to temporarily operate the 860 PZ off the 927 PZ without use of the 860-1 Reservoir until demands in Otay Mesa increase and funding can be secured for the tank. Additional analysis may be required to determine the exact timing of the proposed reservoir.

#### Project

In the District's 2010 WRMP, demands for the OMCP area were revised to include increased potable water demands from the Project.

The 2010 WRMP did not identify additional storage or pumping deficiencies under ultimate conditions, beyond improvements recommended in the 2008 WRMP. The District has adequate storage and pumping capacity to serve the future Project demands of the OMCP within the District's jurisdiction. As new developments move forward, the District may require individual projects to submit detailed hydraulic studies.

## 7.0 Summaries and Conclusions

In this technical infrastructure study, the Project is being compared to the No Project alternative to determine what additional infrastructure may be required to support the proposed changes in land use. The No Project condition is based on currently adopted master planning documents that conform to the 1981 OMCP. These Master Plans (the *1999 South San Diego-Otay Mesa Water Study*, the *2008 District Water Resources Master Plan and 2010 Update (revised 2013)*, and the *2004 Otay Mesa Trunk Sewer Master Plan and Alignment Study and 2009 Refinement Report, and the 2009 Baseline Report*) and their associated certified environmental planning documents provide a benchmark for infrastructure planning documents are out of date and the population/density assumptions have been changed. So, in order to compare the Project with the No Project Condition, the infrastructure requirements for the No Project Condition were evaluated to conform to the City's current water, sewer and recycled water design guides and the current population/density assumptions.

In the previous sections, this technical study outlined the approach toward evaluating identified impacts and improvements necessary to provide water, recycled water and sewer service for the OMCP area under the No Project condition and to accommodate increased demands from the Project. The identified impacts are summarized in the following sections.

### 7.1 Summary of Water Improvements

The improvements associated with the water system serving the OMCP under the alternative land use scenarios, previously shown on Figure 8, are summarized in **Table 8**, below.

As shown in **Table 8**, backbone improvements are required to existing and planned water facilities to implement the No Project condition and corresponding water demands. Within the OMCP area, future development requires the construction of new pipeline to provide redundant water service to the OMCP area and complete service looping, as well as upgraded capacity at the Otay Mesa Pump Station. Prior planning studies, such as the *1999 South San Diego-Otay Mesa Water Study*, planned that all peak demands and fire flows would be provided by a combination of the three pump stations.

Within the District, no identified improvements were located within the OMCP area; however, a new reservoir will provide adequate storage to meet buildout demands.

## 7.2 Summary of Sewer Improvements

The improvements associated with the City's sewer system serving the OMCP area under the alternative land use scenarios, previously shown on **Figure 9**, are summarized in **Table 9**, below.

Land Use Alternative	Improvement Identification No.	Facility	Location	Description of Improvement
	A	Otay Mesa Pump Station Replacement & Upgrade Capacity	Outside of the OMCP, within the City	Upgrade the Otay Mesa Pump Station to 11,500 gpm to meet ultimate demands. Additional capacity may also be installed at Ocean View Hills and Princess Park Pump Stations.
	В	33" South San Diego pipeline replacement (Parallel 20" or 48")	Outside of the OMCP, within the City	Install 12,380 feet of new 20-inch pipe between the South San Diego Reservoir and the Otay Mesa Pump Station or replace the 33-inch South San Diego Pipeline #1 with a new 48- inch pipe for redundancy.
	С	Complete 24" 680 PZ loop	Within the OMCP, within the City	Install 2,400 feet of new 24-inch pipe in Otay Mesa Road between Hawken Drive and Crescent Bay Drive to provide redundancy in Otay Mesa and allow the Princess Park pump station to supply the 680 PZ.
No Project	C1	Alternate 680 PZ alignment	Within the OMCP, within the City	Alternate alignment to provide redundancy to 680 PZ.
	D	Redundant Pipeline	Within the OMCP, within the City	Install 2,080 feet of new 16-inch pipe to provide redundant service between Otay Mesa Road and Beyer Boulevard.
	D1	Alternate Alignment for Redundant Pipeline	Within the OMCP, within the City	Alternate alignment to provide redundancy to 680 PZ.
	E Airway Road Wa Service Extensio	Airway Road Water Service Extension	Within the OMCP, within the City	Install 2,500 feet of new 16" or 24" pipe in Airway Road, between Heritage Road and Caliente Avenue serve future City area to the east and provide alternative alignment for 24- inch Otay Mesa Road pipeline replacement. Timing of this project may be based on Airway Road extension. As an alternative, the area just west of Heritage Road could be served by the District.
	F	New 10-mg 870-2 Reservoir	Outside of the OMCP, within the District	Install 10-mg 870-2 Reservoir to provide capacity to satisfy projected buildout storage requirements. The proposed site for the 870-2 Reservoir is adjacent to the existing 870-1 Reservoir.
3B	ЗА	Otay Mesa Pump Station Upgrade Capacity	Outside of the OMCP, within the City	Add 750-gpm pump to increase capacity of pump station.

Table 8	Summary of Identified Water System Improven	nents
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Land Use	Improvement Identification			
Alternative	NO.	Facility	Location	Description of Improvement
	A	Upgrade SPS 23T to permanent SPS – emergency storage & capacity	Within the OMCP	Upgrade SPS 23T from temporary to permanent status by adding 0.25 mg emergency storage and upgrade pumping capacity to 4.3 mgd (8 mgd build-out).
	В	Upgrade SPS 23T to permanent SPS – 24- inch force main	Within the OMCP	Upgrade SPS 23T from temporary to permanent status by installing 8,000 feet of 24-inch force main from SPS 23T to Heritage Road.
	С	Diversion Structure	Within the OMCP	Install diversion structure to split sewer flows between the OMTS and the OVTS, which gives the City more flexibility in operating the system and defers costly improvements to the San Ysidro Trunk Sewer.
No Project	D	Dual 24-inch force main	Within the OMCP	Install 8,000 feet dual 24-inch force main along Otay Mesa Road from diversion structure to gravity sewer.
	Е	Replace 16-inch force main with 24-inch force main	Within the OMCP	Replace 3,600 feet of 16-inch force main with 24-inch force main from SR- 905 to diversion structure.
	F	Install 20-inch gravity main	Within the OMCP	Install 2,800 feet 20-inch gravity main along Otay Mesa Road from force main to existing 42-inch gravity main.
	G	Install 24-inch gravity main	Outside the OMCP	Install 5,000 feet 24-inch gravity main from existing 42-inch gravity main to existing 24-inch San Ysidro Trunk Sewer.
	н	Bauchmann Sewer Pump Station and Force main	Within the OMCP	Install future pump station to accommodate new residential development.
	J	South Otay Mesa Sewer Pump Station and Force main	Within the OMCP	Install future pump station to accommodate new residential development.
	ЗA	Increase SPS 23T emergency storage	Within the OMCP	Increase emergency storage at SPS 23T to 0.50 mg.
3B	3F	Upsize 20-inch to 24- inch	Within the OMCP	Upsize 20-inch to 20-inch gravity main along Otay Mesa Road from force main to existing 42-inch gravity main.
	3G	Upsize 24-inch to 30- inch	Outside the OMCP	Upsize 24-inch to 30-inch gravity main from existing 42-inch gravity main to existing 24-inch San Ysidro Trunk Sewer.

Table 9	Summary of	<b>Identified Sewer</b>	System	Improvements
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These improvements are not considered significant as the 2004 OMTS Sewer Master Plan and 2009 OMTS Refinement Report identified these improvements as potentially required in future phases to accommodate build-out wastewater generation from the area.

## 7.3 Summary of Recycled Water Improvements

The recycled water analysis assumed that the City's recycled water demands would be served by wheeling recycled water through the District's recycled water service, delivering recycled water from the east through an extension of the District's recycled water pipeline in Otay Mesa Road. The planned facilities identified in the 2008 WRMP and 2010 WRMP are sufficient to serve the No Project and Project demands. If the City decides in the future to serve their jurisdiction without using the District's distribution system, the system should be reevaluated.

## 7.4 Final Conclusions

The water, sewer and recycled water distribution and collection systems are adequate, with some minor improvements identified, to serve the No Project condition and the proposed Project.

## **APPENDIX A**

**Development Summary Tables** 

## **Otay Mesa Draft Scenario 3B Development Summary Table**

Otay Mesa Draft Scenario 3B Summary Table										
	SF Units	MF Units	Total Units	Total Pop	Park Acres					
Northwest Area	2,873	4,775	7,648	27,908	51					
Southwest Village	1,400	4,480	5,880	21,028	59					
Central Village	-	5,246	5,246	18,099	51					
TOTAL	4,273	14,501	18,774	67,035	161					

http://www.sandiego.gov/planning/community/profiles/otaymesa/cpu/

Land Use Categories	Draft Scenario 3B
Residential	757
Village Centers	721
Commercial	318
Industrial	2,432
Institutional	1,165
Parks	161
Open Space	2,752
Right of Way	1,023
	9,329
SF Detached	4,273
MF and attached	14,501
Total	18,774

#### OMCP Update - 2030 No Project Scenario

ZONE	TAZ Acres	DESIGTN	Acres	Water	Area	SF Units	MF Units	HH Pop	Emp Pop
4429	506.18	INSTITUTIONAL	12.14	City	NW	-	-	-	109
4443	482.55	INSTITUTIONAL	2.54	City	NW	-	-	-	-
4460	177.94	INSTITUTIONAL	8.29	City	NW	-	-	-	8
4472	940.42	INSTITUTIONAL	773.22	City	BF	-	-	-	773
4505	142.15	INSTITUTIONAL	29.80	City	NW	-	-	-	268
4526	159.90	INSTITUTIONAL	22.82	City	SW	-	-	-	160
4546	142.90	INSTITUTIONAL	4.21	City	SW	-	-	-	-
4558	196.87	INSTITUTIONAL	0.00	City	SW	-	-	-	-
4561	469.20	INSTITUTIONAL	12.15	City	SW	-	-	-	109
4578	388.64	INSTITUTIONAL	9.58	City	SW	-	-	-	86
4608	102.71	INSTITUTIONAL	0.04	City	BF	-	-	-	-
4609	65.10	INSTITUTIONAL	60.82	City	BF	-	-	-	61
4610	74.50	INSTITUTIONAL	46.48	City	SW	-	-	I	325
4611	71.73	INSTITUTIONAL	0.02	City	SW	-	-	I	-
4460	177.94	LIGHT INDUSTRIAL	36.04	City	NW	-	-	I	778
4467	238.74	LIGHT INDUSTRIAL	0.03	City	NW	-	-	-	1
4497	170.98	LIGHT INDUSTRIAL	100.65	City	NW	-	-	-	2,172
4499	143.27	LIGHT INDUSTRIAL	2.42	City	NW	-	-	-	52
4522	68.97	LIGHT INDUSTRIAL	21.75	City	NW	-	-	-	469
4608	102.71	LIGHT INDUSTRIAL	69.40	City	BF	-	-	-	1,498
4429	506.18	LOW	157.60	City	NW	985	820	6,749	-
4443	482.55	LOW	196.05	City	NW	1,046	224	4,936	-
4467	238.74	LOW	71.26	City	NW	447	445	3,314	-
4496	102.60	LOW	4.57	City	NW	-	1,016	3,505	-
4499	143.27	LOW	37.79	City	NW	123	630	2,663	-
4505	142.15	LOW	0.46	City	NW	-	-	-	-
4517	210.41	LOW	47.79	City	NW	501	32	2,104	-
4526	159.90	LOW	0.02	City	SW	-	-	-	-
4558	196.87	LOW	40.93	City	SW	205	-	815	-
4561	469.20	LOW	120.20	City	SW	841	-	3,349	-
4578	388.64	LOW	52.24	City	SW	261	-	1,040	-
4611	71.73	LOW	2.25	City	SW	-	-	-	-
4429	506.18	LOW MEDIUM	15.43	City	NW	-	-	-	-
4467	238.74	LOW MEDIUM	5.65	City	NW	-	-	-	-
4517	210.41	LOW MEDIUM	31.11	City	NW	-	-	-	-
4558	196.87	LOW MEDIUM	29.42	City	SW	-	412	1,421	-
4561	469.20	LOW MEDIUM	0.12	City	SW	-	2	6	-
4611	71.73	LOW MEDIUM	30.33	City	SW	-	425	1,465	-
4429	506.18	MEDIUM	28.80	City	NW	-	-	-	-
4431	85.03	MEDIUM	0.46	City	NW	-	-	-	-
4443	482.55	MEDIUM	13.10	City	NW	-	-	-	-
4464	83.75	MEDIUM	0.30	City	NW	-	-	-	-
4467	238.74	MEDIUM	13.34	City	NW	-	-	-	-
4496	102.60	MEDIUM	11.02	City	NW	-	-	-	-
4499	143.27	MEDIUM	30.12	City	NW	-	-	-	-
4520	52.10	MEDIUM	0.91	City	NW	-	-	-	-
4526	159.90	MEDIUM	56.93	City	SW	-	1,651	5,695	-
4546	142.90	MEDIUM	2.49	City	SW	-	72	249	-
4558	196.87	MEDIUM	0.01	City	SW	-	0	0	-
4608	102.71	MEDIUM	4.68	City	BF	-	145	500	-
4610	74.50	MEDIUM	0.14	City	SW	-	-	-	-
4496	102.60	MEDIUM HIGH	23.02	City	NW	-	-	-	-
4505	142.15	MEDIUM HIGH	45.03	City	NW	-	1,578	5,444	-
4511	42.49	MEDIUM HIGH	0.21	City	NW	-	-	-	-
4429	506.18	OPEN SPACE	165.41	City	NW	-	-	-	-
4431	85.03	OPEN SPACE	0.00	City	NW	-	-	-	-
4443	482.55	OPEN SPACE	253.18	City	NW	-	-	-	-
4460	177.94	OPEN SPACE	30.34	City	NW	-	-	-	-
4467	238.74	OPEN SPACE	130.78	City	NW	-	-	-	-
4472	940.42	OPEN SPACE	155.69	City	BF	-	-	-	-
4496	102.60	OPEN SPACE	58.22	City	NW	-	-	-	-
4497	170.98	OPEN SPACE	68.04	City	NW	-	-	-	-
4499	143.27	OPEN SPACE	24.27	City	NW	-	-	-	-

ZONE	TAZ Acres	DESIGTN	Acres	Water	Area	SF Units	MF Units	НН Рор	Emp Pop
4505	142.15	OPEN SPACE	23.44	City	NW	-	-	-	-
4517	210.41	OPEN SPACE	59.64	Citv	NW	-	-	-	-
4520	52 10	OPEN SPACE	0.28	City	NW	-	-	-	-
4520	52 10	OPEN SPACE	0.00	City	NW	-	-	-	-
4521	38.42		1.19	City	NW				
4500	69.07		22.07	City		-	-	-	_
4022	150.00		23.97	City		-	-	-	-
4526	159.90		47.08	City	5W	-	-	-	-
4546	142.90		100.39	City	SW	-	-	-	-
4558	196.87	OPEN SPACE	110.81	City	SW	-	-	-	-
4561	469.20	OPEN SPACE	230.51	City	SW	-	-	-	-
4578	388.64	OPEN SPACE	246.65	City	SW	-	-	-	-
4608	102.71	OPEN SPACE	12.90	City	BF	-	-	-	-
4610	74.50	OPEN SPACE	24.14	City	SW	-	-	-	-
4611	71.73	OPEN SPACE	36.19	City	SW	-	-	-	-
4429	506.18	PARKS	13.03	City	NW	-	-	-	26
4443	482.55	PARKS	6.78	City	NW	-	-	-	14
4467	238.74	PARKS	7.97	City	NW	-	-	-	16
4499	143.27	PARKS	4.95	Citv	NW	-	-	-	10
4505	142.15	PARKS	15.11	Citv	NW	-	-	-	30
4561	469 20	PABKS	8.21	City	SW	-	-	-	16
4578	388.64	PABKS	7.80	City	SW	-	-	-	16
1070	85.03		30.62	City	NW			-	980
4464	00.00		57.70	City		-	-	-	1 940
4404	03.75		57.79	City		-	-	-	1,649
4467	238.74	REGIONAL COMMERCIAL - NO RESIDENTIAL	0.24	City	IN VV	-	-	-	8
4496	102.60	REGIONAL COMMERCIAL - NO RESIDENTIAL	1.87	City	NVV	-	-	-	60
4497	170.98	REGIONAL COMMERCIAL - NO RESIDENTIAL	0.00	City	NW	-	-	-	0
4499	143.27	REGIONAL COMMERCIAL - NO RESIDENTIAL	0.01	City	NW	-	-	-	0
4511	42.49	REGIONAL COMMERCIAL - NO RESIDENTIAL	38.37	City	NW	-	-	-	280
4520	52.10	REGIONAL COMMERCIAL - NO RESIDENTIAL	25.27	City	NW	-	-	-	184
4520	52.10	REGIONAL COMMERCIAL - NO RESIDENTIAL	0.00	City	NW	-	-	-	0
4520	52.10	REGIONAL COMMERCIAL - NO RESIDENTIAL	0.01	City	NW	-	-	-	0
4521	38.42	REGIONAL COMMERCIAL - NO RESIDENTIAL	21.95	City	NW	-	-	-	160
4522	68.97	REGIONAL COMMERCIAL - NO RESIDENTIAL	2.95	City	NW	-	-	-	22
4526	159.90	REGIONAL COMMERCIAL - NO RESIDENTIAL	3.84	City	SW	-	-	-	28
4558	196.87	REGIONAL COMMERCIAL - NO RESIDENTIAL	13.85	Citv	SW	-	-	-	443
4608	102.71	REGIONAL COMMERCIAL - NO RESIDENTIAL	2.55	City	BF	-	-	-	19
4611	71 73	BEGIONAL COMMERCIAL - NO BESIDENTIAL	2.51	City	SW	-	-	-	80
4429	506.18	BIGHT-OF-WAY	23.47	City	NW	-	-	-	-
1/21	85.03	RIGHT-OF-WAY	0.28	City	NW			-	
4442	492.55		10.20	City					
4460	177.04		10.03	City		-	-	-	_
4400	177.94		2.02	City		-	-	-	-
4464	83.75		23.54	City		-	-	-	-
4467	238.74	RIGHT-OF-WAY	9.46	City	NW	-	-	-	-
4472	940.42	RIGHT-OF-WAY	11.15	City	BF	-	-	-	-
4496	102.60	RIGHT-OF-WAY	3.89	City	NW	-	-	-	-
4497	170.98	RIGH F-OF-WAY	2.29	City	NW	-	-	-	-
4499	143.27	RIGHT-OF-WAY	43.67	City	NW	-	-	-	-
4505	142.15	RIGHT-OF-WAY	28.32	City	NW	-	-	-	-
4507	187.56	RIGHT-OF-WAY	1.18	City	NW	-	-	-	-
4511	42.49	RIGHT-OF-WAY	3.91	City	NW	-	-	-	-
4517	210.41	RIGHT-OF-WAY	71.07	City	NW	-	-	-	-
4520	52.10	RIGHT-OF-WAY	25.62	City	NW	-	-	-	-
4520	52.10	RIGHT-OF-WAY	0.01	City	NW	-	-	-	-
4521	38.42	RIGHT-OF-WAY	11.99	City	NW	-	-	-	-
4522	68.97	RIGHT-OF-WAY	20.31	City	NW	-	-	-	-
4526	159.90	RIGHT-OF-WAY	29.20	City	SW	-	-	-	-
4546	142 90	BIGHT-OF-WAY	6 15	City	SW	-	-	-	_
4558	196.87	BIGHT-OF-WAY	1 69	City	SW	-	-	-	
4550	160.07		1.09	City	SW	-	-	-	-
4501	409.20		2.00	City	SW	-	-	-	-
4078	100.04		1.95	City	DE	-	-	-	-
4008	102.71		13.15	City		-	-	-	-
4609	65.10		4.29			-	-	-	-
4610	/4.50	NIGHT-UF-WAY	3./4	UILY	300	-	-	-	-

#### OMCP Update - 2030 No Project Scenario

ZONE	TAZ Acres	DESIGTN	Acres	Water	Area	SF Units	MF Units	HH Pop	Emp Pop
4611	71.73	RIGHT-OF-WAY	0.42	City	SW	-	-	-	-
4546	142.90	VERY LOW	29.54	City	SW	59	-	235	-
4558	196.87	VERY LOW	0.16	City	SW	-	-	-	-
4561	469.20	VERY LOW	95.21	City	SW	190	-	758	-
4578	388.64	VERY LOW	70.42	City	SW	141	-	561	-
4463	184.29	INSTITUTIONAL	7.33	OWD		-	-	-	7
4580	68.50	INSTITUTIONAL	27.64	OWD		-	-	-	1,327
4581	111.66	INSTITUTIONAL	0.00	OWD		-	-	-	-
4584	53.22	INSTITUTIONAL	0.00	OWD		-	-	-	-
4606	3.65	INSTITUTIONAL	3.65	OWD		-	-	-	175
4607	6.68	INSTITUTIONAL	6.68	OWD		-	-	-	321
4450	200.79	LIGHT INDUSTRIAL	52.36	OWD		-	-	-	1,130
4463	184.29	LIGHT INDUSTRIAL	60.81	OWD		-	-	-	1,313
4479	303.37	LIGHT INDUSTRIAL	172.80	OWD		-	-	-	3,730
4524	82.25	LIGHT INDUSTRIAL	53.63	OWD		-	-	-	1,158
4525	80.01	LIGHT INDUSTRIAL	56.58	OWD		-	-	-	1,221
4527	80.39	LIGHT INDUSTRIAL	58.98	OWD		-	-	-	1,273
4528	82.36	LIGHT INDUSTRIAL	0.20	OWD		-	-	-	4
4529	40.49	LIGHT INDUSTRIAL	0.08	OWD		-	-	-	2
4530	96.52	LIGHT INDUSTRIAL	49.51	OWD		-	-	-	1,069
4531	106.32	LIGHT INDUSTRIAL	59.26	OWD		-	-	-	1,279
4532	79.52	LIGHT INDUSTRIAL	56.62	OWD		-	-	-	1,222
4545	157.54	LIGHT INDUSTRIAL	45.16	OWD		-	-	-	975
4547	80.41	LIGHT INDUSTRIAL	64.47	OWD		-	-	-	1,392
4548	80.95	LIGHT INDUSTRIAL	60.98	OWD		-	-	-	1,316
4549	79.02	LIGHT INDUSTRIAL	0.00	OWD		-	-	-	0
4550	39.86	LIGHT INDUSTRIAL	0.01	OWD		-	-	-	0
4551	121.73	LIGHT INDUSTRIAL	76.64	OWD		-	-	-	1,654
4560	316.66	LIGHT INDUSTRIAL	162.83	OWD		-	-	-	3,515
4562	160.88	LIGHT INDUSTRIAL	151.35	OWD		-	-	-	3,267
4563	162.24	LIGHT INDUSTRIAL	155.48	OWD		-	-	-	3,356
4564	161.45	LIGHT INDUSTRIAL	112.74	OWD		-	-	-	2,433
4565	177.81	LIGHT INDUSTRIAL	149.10	OWD		-	-	-	3,218
4566	144.46	LIGHT INDUSTRIAL	128.42	OWD		-	-	-	2,772
4567	55.77	LIGHT INDUSTRIAL	6.45	OWD		-	-	-	139
4569	68.58	LIGHT INDUSTRIAL	13.96	OWD		-	-	-	301
4570	69.39	LIGHT INDUSTRIAL	56.01	OWD		-	-	-	1,209
4580	68.50	LIGHT INDUSTRIAL	0.54	OWD		-	-	-	12
4581	111.66	LIGHT INDUSTRIAL	94.08	OWD		-	-	-	2,031
4584	53.22	LIGHT INDUSTRIAL	28.49	OWD		-	-	-	615
4586	370.62	LIGHT INDUSTRIAL	110.09	OWD		-	-	-	2,376
4587	159.34	LIGHT INDUSTRIAL	147.05	OWD		-	-	-	3,174
4588	140.96	LIGHT INDUSTRIAL	132.13	OWD		-	-	-	2,852
4589	124.27	LIGHT INDUSTRIAL	119.67	OWD		-	-	-	2,583
4590	192.94	LIGHT INDUSTRIAL	170.98	OWD		-	-	-	3,690
4607	6.68	LIGHT INDUSTRIAL	0.00	OWD		-	-	-	0
4450	200.79	OPEN SPACE	133.65	OWD		-	-	-	-
4463	184.29	OPEN SPACE	87.31	OWD		-	-	-	-
4545	157.54	OPEN SPACE	90.62	OWD		-	-	-	-
4549	79.02	OPEN SPACE	6.27	OWD		-	-	-	-
4560	316.66	OPEN SPACE	146.80	OWD		-	-	-	-
4564	161.45	OPEN SPACE	41.68	OWD		-	-	-	-
4586	370.62	OPEN SPACE	254.63	OWD		-	-	-	-
4592	74.73	OPEN SPACE	0.01	OWD		-	-	-	-
4602	52.83	OPEN SPACE	0.26	OWD		-	-	-	-
4528	82.36	REGIONAL COMMERCIAL - NO RESIDENTIAL	59.47	OWD		-	-	-	434
4529	40.49	REGIONAL COMMERCIAL - NO RESIDENTIAL	17.25	OWD		-	-	-	126
4530	96.52	REGIONAL COMMERCIAL - NO RESIDENTIAL	0.00	OWD		-	-	-	0
4545	157.54	REGIONAL COMMERCIAL - NO RESIDENTIAL	0.27	OWD		-	-	-	9
4548	80.95	REGIONAL COMMERCIAL - NO RESIDENTIAL	0.00	OWD		-	-	-	0
4549	79.02	REGIONAL COMMERCIAL - NO RESIDENTIAL	43.77	OWD		-	-	-	319
4550	39.86	REGIONAL COMMERCIAL - NO RESIDENTIAL	30.40	OWD		-	-	-	222
4567	55.77	REGIONAL COMMERCIAL - NO RESIDENTIAL	31.55	OWD		-	-	-	230

#### OMCP Update - 2030 No Project Scenario

ZONE	TAZ Acres	DESIGTN	Acres	Water	Area	SF Units	MF Units	HH Pop	Emp Pop
4569	68.58	REGIONAL COMMERCIAL - NO RESIDENTIAL	30.26	OWD		-	-	-	221
4580	68.50	REGIONAL COMMERCIAL - NO RESIDENTIAL	27.17	OWD		-	-	-	198
4581	111.66	<b>REGIONAL COMMERCIAL - NO RESIDENTIAL</b>	0.00	OWD		-	-	-	0
4584	53.22	<b>REGIONAL COMMERCIAL - NO RESIDENTIAL</b>	10.24	OWD		-	-	-	75
4606	3.65	<b>REGIONAL COMMERCIAL - NO RESIDENTIAL</b>	0.00	OWD		-	-	-	0
4450	200.79	RIGHT-OF-WAY	13.97	OWD		-	-	-	-
4463	184.29	RIGHT-OF-WAY	28.75	OWD		-	-	-	-
4479	303.37	RIGHT-OF-WAY	71.61	OWD		-	-	-	-
4524	82.25	RIGHT-OF-WAY	28.62	OWD		-	-	-	-
4525	80.01	RIGHT-OF-WAY	23.43	OWD		-	-	-	-
4527	80.39	RIGHT-OF-WAY	21.41	OWD		-	-	-	-
4528	82.36	RIGHT-OF-WAY	22.69	OWD		-	-	-	-
4529	40.49	RIGHT-OF-WAY	23.16	OWD		-	-	-	-
4530	96.52	RIGHT-OF-WAY	47.01	OWD		-	-	-	-
4531	106.32	RIGHT-OF-WAY	47.06	OWD		-	-	-	-
4532	79.52	RIGHT-OF-WAY	22.90	OWD		-	-	-	-
4545	157.54	RIGHT-OF-WAY	21.49	OWD		-	-	-	-
4547	80.41	RIGHT-OF-WAY	15.93	OWD		-	-	-	-
4548	80.95	RIGHT-OF-WAY	19.97	OWD		-	-	-	-
4549	79.02	RIGHT-OF-WAY	28.99	OWD		-	-	-	-
4550	39.86	RIGHT-OF-WAY	9.45	OWD		-	-	-	-
4551	121.73	RIGHT-OF-WAY	45.10	OWD		-	-	-	-
4560	316.66	RIGHT-OF-WAY	7.03	OWD		-	-	-	-
4562	160.88	RIGHT-OF-WAY	9.53	OWD		-	-	-	-
4563	162.24	RIGHT-OF-WAY	6.76	OWD		-	-	-	-
4564	161.45	RIGHT-OF-WAY	7.03	OWD		-	-	-	-
4565	177.81	RIGHT-OF-WAY	28.71	OWD		-	-	-	-
4566	144.46	RIGHT-OF-WAY	16.04	OWD		-	-	-	-
4567	55.77	RIGHT-OF-WAY	17.77	OWD		-	-	-	-
4569	68.58	RIGHT-OF-WAY	24.36	OWD		-	-	-	-
4570	69.39	RIGHT-OF-WAY	12.02	OWD		-	-	-	-
4580	68.50	RIGHT-OF-WAY	13.14	OWD		-	-	-	-
4581	111.66	RIGHT-OF-WAY	16.61	OWD		-	-	-	-
4584	53.22	RIGHT-OF-WAY	14.49	OWD		-	-	-	-
4586	370.62	RIGHT-OF-WAY	5.90	OWD		-	-	-	-
4587	159.34	RIGHT-OF-WAY	12.28	OWD		-	-	-	-
4588	140.96	RIGHT-OF-WAY	8.83	OWD		-	-	-	-
4589	124.27	RIGHT-OF-WAY	4.60	OWD		-	-	-	-
4590	192.94	RIGHT-OF-WAY	21.96	OWD		-	-	-	-
4592	74.73	VERY LOW	0.02	OWD		-	-	-	-
Totals	39847.41		9302.47		<u> </u>	4,800	7,451	44,810	71,056

District	SF Units	MF Units	HH Pop	Emp Pop
City	4800	7451	44810	11112
OWD	0	0	0	59943
Total	4800	7451	44810	71056

TAZ		TAZ_Acres	DESIGTN	LU_Acres	Water
	4521	38.42	BUSINESS AND INTERNATIONAL TRADE	0.49	City
	4522	68.97	BUSINESS AND INTERNATIONAL TRADE	23.81	City
	4496	102.60	COMMUNITY COMMERCIAL - NO RESIDENTIAL	2.46	City
	4505	142.15	COMMUNITY COMMERCIAL - NO RESIDENTIAL	0.00	City
	4511	42.49	COMMUNITY COMMERCIAL - NO RESIDENTIAL	18.44	City
	4520	52.10	COMMUNITY COMMERCIAL - NO RESIDENTIAL	23.32	City
	4521	38.42	COMMUNITY COMMERCIAL - NO RESIDENTIAL	19.90	City
	4522	68.97	COMMUNITY COMMERCIAL - NO RESIDENTIAL	0.01	City
	4526	159.90	COMMUNITY COMMERCIAL - NO RESIDENTIAL	19.07	City
	4608	102.71	COMMUNITY COMMERCIAL - NO RESIDENTIAL	2.98	City
	4608	102.71	HEAVY INDUSTRIAL	65.25	City
	4472	940.42		0.01	City
	4431	85.03	INSTITUTIONAL	5.80	City
	4443	482.55		3.05	City
	4460	1/7.94		4.90	City
	4505	142.15		30.71	City
	4505	142.15		19.00	City
	4511	150 00		10.24	City
	4520	1/2 00		22.23	City
	4558	196.87	INSTITUTIONAL	8.48	City
	4561	469.20	INSTITUTIONAL	11.68	City
	4608	102.71	INSTITUTIONAL	0.02	City
	4609	65.10	INSTITUTIONAL	59.09	City
	4610	74.50	INSTITUTIONAL	29.92	City
	4472	940.42	INSTITUTIONAL	749.59	City
	4460	177.94	LIGHT INDUSTRIAL	38.15	, City
	4497	170.98	LIGHT INDUSTRIAL	90.49	City
	4499	143.27	LIGHT INDUSTRIAL	2.33	City
	4499	143.27	LIGHT INDUSTRIAL	0.00	City
	4608	102.71	LIGHT INDUSTRIAL	5.01	City
	4472	940.42	LIGHT INDUSTRIAL	0.18	City
	4429	506.18	LOW	159.60	City
	4443	482.55	LOW	192.96	City
	4443	482.55	LOW	0.07	City
	4467	238.74	LOW	71.35	City
	4496	102.60	LOW	4.74	City
	4496	102.60	LOW	0.00	City
	4499	143.27	LOW	33.11	City
	4505	142.15	LOW	0.00	City
	4517	210.41	LOW	87.11	City
	4517	210.41		0.02	City
	4429	506.18		61.34	City
	4431	85.03		0.02	City
	4540	142.90		2.03	City
	4010	506.18	MEDIUM	0.80	City
	4443	482 55	MEDIUM	13 38	City
	4467	238 74	MEDIUM	7 25	City
	4467	238.74	MEDIUM	0.00	City
	4499	143.27	MEDIUM	29.57	City
	4499	143.27	MEDIUM	0.00	City
	4608	102.71	MEDIUM	4.72	City
	4496	102.60	MEDIUM HIGH	21.68	City
	4505	142.15	MEDIUM HIGH	43.35	City
	4526	159.90	NEIGHBORHOOD VILLAGE	40.87	City
	4558	196.87	NEIGHBORHOOD VILLAGE	70.33	City
	4561	469.20	NEIGHBORHOOD VILLAGE	241.49	City
	4578	388.64	NEIGHBORHOOD VILLAGE	137.44	City
	4610	74.50	NEIGHBORHOOD VILLAGE	13.31	City
	4611	71.73	NEIGHBORHOOD VILLAGE	31.57	City
	4429	506.18	OPEN SPACE	163.68	City
	4431	85.03	OPEN SPACE	3.83	City
	4443	482.55	OPEN SPACE	255.94	City

4443	482.55 OPEN SPACE	0.07 City
4450	200.79 OPEN SPACE	185.17 City
4460	177.94 OPEN SPACE	31.58 City
4467	238.74 OPEN SPACE	140.36 City
4467	238.74 OPEN SPACE	0.00 City
4496	102.60 OPEN SPACE	69.17 City
4496	102.60 OPEN SPACE	0.00 City
4497	170.98 OPEN SPACE	69.32 City
4499	143.27 OPEN SPACE	26.56 City
4505	142.15 OPEN SPACE	21.37 City
4505	142.15 OPEN SPACE	0.00 City
4517	210.41 OPEN SPACE	57.07 City
4517	210.41 OPEN SPACE	0.02 City
4520	52.10 OPEN SPACE	0.28 City
4521	38.42 OPEN SPACE	4.10 City
4522	68.97 OPEN SPACE	24.11 City
4526	159.90 OPEN SPACE	44.23 City
4546	142.90 OPEN SPACE	111.50 City
4558	196.87 OPEN SPACE	108.01 City
4561	469.20 OPEN SPACE	182.16 City
4578	388.04 UPEN SPACE	239.00 City
4008	102.71 OPEN SPACE	8.32 City
4010	74.50 OPEN SPACE	27.95 City
4011	11.75 OPEN SPACE	51.45 City
4472	540.42 OPEN SPACE	130.43 City
4423	85 03 DARKS	13 /8 City
4431	482 55 PARKS	3 94 City
4467	238 74 PARKS	6.87 City
4499	143.27 PARKS	4.90 City
4505	142.15 PARKS	15.43 City
4558	196.87 PARKS	5.75 City
4561	469.20 PARKS	22.30 City
4578	388.64 PARKS	12.20 City
4611	71.73 PARKS	5.75 City
4431	85.03 REGIONAL COMMERCIAL - NO RESIDENTIAL	29.12 City
4464	83.75 REGIONAL COMMERCIAL - NO RESIDENTIAL	59.31 City
4499	143.27 REGIONAL COMMERCIAL - NO RESIDENTIAL	0.01 City
4429	506.18 RIGHT-OF-WAY	25.32 City
4431	85.03 RIGHT-OF-WAY	15.91 City
4443	482.55 RIGHT-OF-WAY	13.21 City
4450	200.79 RIGHT-OF-WAY	14.45 City
4460	177.94 RIGHT-OF-WAY	2.35 City
4464	83.75 RIGHT-OF-WAY	24.38 City
4467	238.74 RIGHT-OF-WAY	12.79 City
4467	238.74 RIGHT-OF-WAY	0.00 City
4496	102.60 RIGHT-OF-WAY	4.55 City
4497	170.98 RIGHT-OF-WAY	11.17 City
4499	143.27 RIGHT-OF-WAY	46.63 City
4499	143.27 RIGHT-OF-WAY	0.00 City
4505	142.15 RIGHT-OF-WAY	31.30 City
4511	42.49 RIGHT-OF-WAY	5.81 City
4517	210.41 RIGHT-OF-WAY	66.09 City
4520	52.10 RIGHT-OF-WAY	28.50 City
4521		13.93 City
4522 1526		21.04 UILY
4520 1516	1/2 00 RIGHT-OF-WAY	23.50 UILY
4040 1550	196.87 RIGHT-OF-WAY	3.44 UILY
4550	469 20 RIGHT-OF-WAY	4.50 City 11 /5 City
4608	102.71 RIGHT-OF-WAY	16 42 City
4609	65.10 RIGHT-OF-WAY	6.01 City
4610	74.50 RIGHT-OF-WAY	2.45 City
4611	71.73 RIGHT-OF-WAY	2.96 Citv
4472	940.42 RIGHT-OF-WAY	33.94 City

4546	142.90 VERY LOW	23.81 City	
4524	82.25 BUSINESS AND INTERNATIONAL TRADE	59.88 OWD	IBT
4525	80.01 BUSINESS AND INTERNATIONAL TRADE	56.51 OWD	IBT
4527	80.39 BUSINESS AND INTERNATIONAL TRADE	65.58 OWD	IBT
4528	82.36 BUSINESS AND INTERNATIONAL TRADE	17.78 OWD	IBT
4529	40.49 BUSINESS AND INTERNATIONAL TRADE	18.06 OWD	IBT
4529	40.49 BUSINESS AND INTERNATIONAL TRADE	0.00 OWD	IBT
4530	96.52 BUSINESS AND INTERNATIONAL TRADE	0.00 OWD	IBT
4530	96.52 BUSINESS AND INTERNATIONAL TRADE	0.00 OWD	IBT
4550	39.86 BUSINESS AND INTERNATIONAL TRADE	32.50 OWD	IBT
4551	121.73 BUSINESS AND INTERNATIONAL TRADE	78.49 OWD	IBT
4563	162.24 BUSINESS AND INTERNATIONAL TRADE	152.48 OWD	IBT
4564	161.45 BUSINESS AND INTERNATIONAL TRADE	108.83 OWD	IBT
4565	177.81 BUSINESS AND INTERNATIONAL TRADE	163.48 OWD	IBT
4566	144.46 BUSINESS AND INTERNATIONAL TRADE	129.83 OWD	IBT
4567	55.77 BUSINESS AND INTERNATIONAL TRADE	35.47 OWD	IBT
4584	53.22 BUSINESS AND INTERNATIONAL TRADE	27.15 OWD	IBT
4588	140.96 BUSINESS AND INTERNATIONAL TRADE	125.25 OWD	IBT
4589	124.27 BUSINESS AND INTERNATIONAL TRADE	49.57 OWD	IBT
4590	192.94 BUSINESS AND INTERNATIONAL TRADE	164.98 OWD	IBT
4590	192.94 BUSINESS AND INTERNATIONAL TRADE	0.02 OWD	IBT
4606	3.65 BUSINESS AND INTERNATIONAL TRADE	0.01 OWD	IBT
4607	6.68 BUSINESS AND INTERNATIONAL TRADE	0.02 OWD	IBT
4545	157.54 BUSINESS PARK	36.18 OWD	Commercia
4548	80.95 BUSINESS PARK	66.65 OWD	Commercia
4548	80.95 BUSINESS PARK	0.00 OWD	Commercia
4549	79.02 BUSINESS PARK	8.59 OWD	Commercia
4562	160.88 BUSINESS PARK	53.09 OWD	Commercia
4562	160.88 BUSINESS PARK	0.00 OWD	Commercia
4547	80.41 BUSINESS PARK - RESIDENTIAL	25.38 OWD	Res
4545	157.54 COMMUNITY COMMERCIAL - NO RESIDENTIAL	0.41 OWD	Commercia
4525	80.01 COMMUNITY VILLAGE	0.01 OWD	Res
4545	157.54 COMMUNITY VILLAGE	10.89 OWD	Res
4547	80.41 COMMUNITY VILLAGE	30.43 OWD	Res
4560	316.66 COMMUNITY VILLAGE	73.60 OWD	Res
4562	160.88 COMMUNITY VILLAGE	0.58 OWD	Res
4586	370.62 COMMUNITY VILLAGE	0.00 OWD	Res
4528	82.36 HEAVY COMMERCIAL	44.40 OWD	Commercia
4529	40.49 HEAVY COMMERCIAL	0.00 OWD	Commercia
4529	40.49 HEAVY COMMERCIAL	0.00 OWD	Commercia
4530	96.52 HEAVY COMMERCIAL	49.44 OWD	Commercia
4530	96.52 HEAVY COMMERCIAL	0.00 OWD	Commercia
4567	55.77 HEAVY COMMERCIAL	8.58 OWD	Commercia
4580	68.50 HEAVY COMMERCIAL	27.65 OWD	Commercia
4581	111.66 HEAVY COMMERCIAL	0.45 OWD	Commercia
4584	53.22 HEAVY COMMERCIAL	10.81 OWD	Commercia
4606	3.65 HEAVY COMMERCIAL	0.00 OWD	Commercia
4479	303.37 HEAVY INDUSTRIAL	90.37 OWD	Industrial
4531	106.32 HEAVY INDUSTRIAL	7.88 OWD	Industrial
4586	370.62 HEAVY INDUSTRIAL	86.66 OWD	Industrial
4587	159.34 HEAVY INDUSTRIAL	144.77 OWD	Industrial
4463	184.29 INSTITUTIONAL	0.78 OWD	Institutiona
4548	80.95 INSTITUTIONAL	0.00 OWD	Institutiona
4548	80.95 INSTITUTIONAL	0.00 OWD	Institutiona
4549		40.47 OWD	Institutiona
4560		12.05 OWD	Institutiona
4562		56.38 OWD	Institutiona
4580		31.01 OWD	Institutiona
4581	111.66 INSTITUTIONAL	6.78 OWD	Institutiona
4584	53.22 INSTITUTIONAL	4.71 OWD	Institutiona
4586		9.21 OWD	Institutiona
4587		9.18 OWD	Institutiona
4588		10.43 OWD	Institutiona
4589		9.60 OWD	Institutiona
4590	192.94 INSTITUTIONAL	18.72 OWD	Institutiona

4606	3.65	INSTITUTIONAL		3.64	OWD	Institutiona
4607	6.68	INSTITUTIONAL		6.66	OWD	Institutiona
4479	303.37	LIGHT INDUSTRIAL		90.33	OWD	Industrial
4531	106.32	LIGHT INDUSTRIAL		53.15	OWD	Industrial
4532	79.52	LIGHT INDUSTRIAL		61.39	OWD	Industrial
4569	68.58	LIGHT INDUSTRIAL		52.82	OWD	Industrial
4570	69.39	LIGHT INDUSTRIAL		59.08	OWD	Industrial
4580	68.50	LIGHT INDUSTRIAL		3.80	OWD	Industrial
4581	111.66	LIGHT INDUSTRIAL		99.01	OWD	Industrial
4560	316.66	NEIGHBORHOOD VILLAGE		49.73	OWD	
4463	184.29	OPEN SPACE		153.84	OWD	OS
4545	157.54	OPEN SPACE		87.19	OWD	OS
4549	79.02	OPEN SPACE		6.38	OWD	OS
4560	316.66	OPEN SPACE		158.59	OWD	OS
4564	161.45	OPEN SPACE		45.53	OWD	OS
4586	370.62	OPEN SPACE		274.69	OWD	OS
4589	124.27	OPEN SPACE		60.77	OWD	05
4547	80.41	PARKS		10.53	OWD	Parks
4560	316.66	PARKS		10.11	OWD	Parks
4562	160.88	PARKS		40.63	OWD	Parks
4562	160.88	PARKS		0.00		Parks
4463	184 29	RIGHT-OF-W/AV		29.63		
4405	203.37	RIGHT-OF-WAY		59.63		ROW
4475	203.37 22.25			22.03		POW
4524	02.2J 90.01			22.37		POW
4525	20.01			25.49		ROW
4527	80.39			14.81		ROW
4528	82.30			20.18		ROW
4529	40.49			22.42		ROW
4529	40.49			0.00		ROW
4530	96.52	RIGHT-OF-WAY		42.66	OWD	ROW
4530	96.52	RIGHT-OF-WAY		0.00	OWD	ROW
4531	106.32	RIGHT-OF-WAY		43.32	OWD	ROW
4532	/9.52	RIGHT-OF-WAY		16.86	OWD	ROW
4545	157.54	RIGHT-OF-WAY		22.88	OWD	ROW
4547	80.41	RIGHT-OF-WAY		14.06	OWD	ROW
4548	80.95	RIGHT-OF-WAY		14.30	OWD	ROW
4548	80.95	RIGHT-OF-WAY		0.00	OWD	ROW
4549	79.02	RIGHT-OF-WAY		23.58	OWD	ROW
4550	39.86	RIGHT-OF-WAY		7.36	OWD	ROW
4551	121.73	RIGHT-OF-WAY		43.24	OWD	ROW
4560	316.66	RIGHT-OF-WAY		12.58	OWD	ROW
4562	160.88	RIGHT-OF-WAY		10.20	OWD	ROW
4562	160.88	RIGHT-OF-WAY		0.00	OWD	ROW
4563	162.24	RIGHT-OF-WAY		9.77	OWD	ROW
4564	161.45	RIGHT-OF-WAY		7.09	OWD	ROW
4565	177.81	RIGHT-OF-WAY		14.33	OWD	ROW
4566	144.46	RIGHT-OF-WAY		14.63	OWD	ROW
4567	55.77	RIGHT-OF-WAY		11.72	OWD	ROW
4569	68.58	RIGHT-OF-WAY		15.59	OWD	ROW
4570	69.39	RIGHT-OF-WAY		6.13	OWD	ROW
4580	68.50	RIGHT-OF-WAY		6.04	OWD	ROW
4581	111.66	RIGHT-OF-WAY		3.70	OWD	ROW
4584	53.22	RIGHT-OF-WAY		10.55	OWD	ROW
4586	370.62	RIGHT-OF-WAY		0.06	OWD	ROW
4587	159.34	RIGHT-OF-WAY		5.38	OWD	ROW
4588	140.96	RIGHT-OF-WAY		5.29	OWD	ROW
4589	124.27	RIGHT-OF-WAY		4.33	OWD	ROW
4590	192.94	RIGHT-OF-WAY		9.24	OWD	ROW
4590	192.94	RIGHT-OF-WAY		0.02	OWD	ROW
				9,315.51		
	District		SF Units MF Units		НН Рор	Emp Pop
	City		4273	9255	48936	13758
	OWD		0	5246	18099	N/A
	Total		4800	7451	44810	