TOWN OF WESTFIELD, INDIANA

WASTEWATER MASTER PLAN

SEPTEMBER 2006

HNTB

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CHAPTER 1
OVERVIEW

1.1 BACKGROUND

The Town of Westfield is a quickly growing suburban community to the north of Indianapolis in Hamilton County, Indiana. Due to the quick population growth that the Town is currently experiencing, the Town has borrowed capacity allocated for the J. Edwards Drain Interceptor service area for other portions of the township that are developing. This capacity was borrowed in order to save capital funds until absolutely necessary. However, new interceptor sewers will soon be needed to serve the currently undeveloped portions of the Town's service area, which encompasses Washington Township. The existing main interceptor, the J. Edwards Drain Interceptor, which drains to the Westside Waste Water Treatment Plant (WWTP), is now allocated to its capacity. Therefore, to allow future growth, new interceptors will be needed. This Master Plan delineates the interceptor sewer basins and determines the size of gravity sewers and lift stations needed to serve Washington Township into the future.

1.2 PURPOSE AND SCOPE

The purpose of this master plan was to identify the interceptor sewer routing for Washington Township in Hamilton County as well as evaluate the capacity of the existing interceptor sewers in Washington Township. Since much of the area is undeveloped and unsewered, the master plan involved developing drainage basin boundaries, determining gravity sewer routes and lift station locations, and determining sewer and lift station sizes. The gravity sewer and lift station sizing was determined by assigning a land use to the drainage basin to determine how much flow could come from the basin once it is developed.

The scope of this project includes the following:

1. Delineate specific planning area within Washington Township for wastewater system.
2. Delineate basins, sub-basins, and sub-sub-basins utilizing geographic information systems (GIS), based on the drainage area and land use.
3. Utilize projected land use densities and natural drainage watersheds to predict probable future wastewater flows for individual drainage areas.
4. Develop wastewater treatment, collection system, and lift station needs for the planning area.

    a. Compare current flow conditions and capacities of the system to future needs based on probable future flows.
    b. Identify collection system and treatment infrastructure to meet future needs of the planning area.

5. Create an interceptor service map showing future master plan sewers for Washington Township.
6. Meet with Town of Westfield staff to discuss the completed Wastewater Master Plan.

1.3 STUDY AREA

The study area for this master plan is all of Washington Township, which is approximately 56 square miles or 35,760 acres. Figure 1-1 shows the study area boundaries.

1.4 REPORT ORGANIZATION

The master plan is organized into four chapters, providing background information, data analysis, needs assessment, alternative evaluation, and a summary of results and recommendations. The Appendices contain detailed supporting data and cost estimates. The remaining chapters are organized as follows:

- Chapter 2 – Methodology

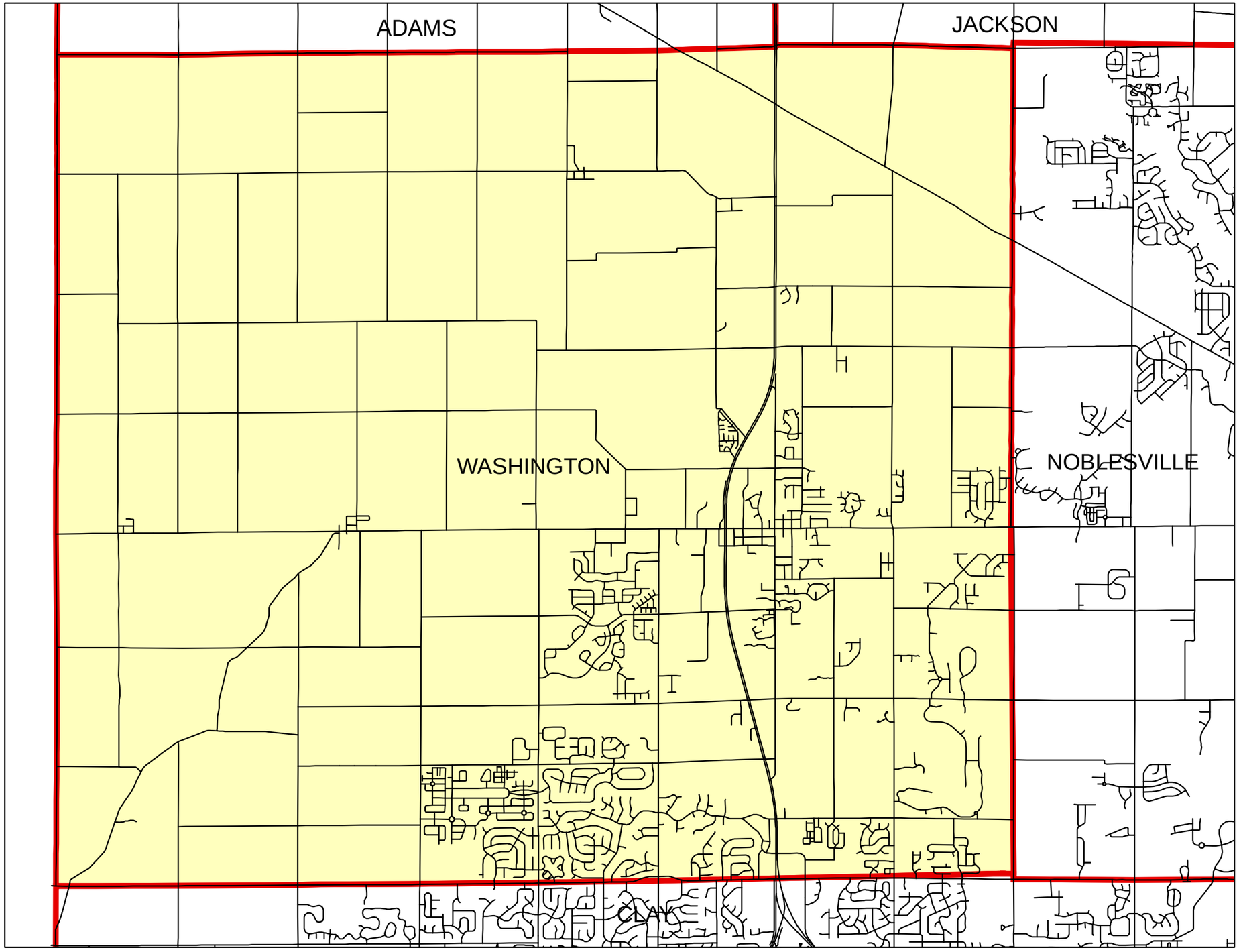
  Chapter 2 includes a description of the methodology utilized for the basin delineation and sewer routing and sizing. The general assumptions made for this master plan are listed in Chapter 2.

- Chapter 3 – Basin Descriptions

  Chapter 3 includes a description of each basin as well as the assumptions that were made for individual basins. Any problem areas for existing sewer basins are discussed in Chapter 3.

- Chapter 4 – Conclusions and Recommendations

  Chapter 4 provides the recommendations for problem areas in existing sewer basins, as well as conclusions for sewer sizing required for proposed sewer basins. Chapter 4 also discusses the procedures for making updates to the GIS-based master plan basins.



Legend

- centerline
- Other Townships
- Study Area

Study Area = 56 Square Miles
= 35,760 Acres

Figure 1-1
Study Area
Westfield Wastewater Master Plan
September 2006

CHAPTER 2
METHODOLOGY

2.1 INTRODUCTION

This chapter describes the methodology utilized to delineate the interceptor sewer basins and determine the sewer sizing. The main portion of the basin delineation was performed by utilizing the GIS data available for Washington Township, including parcels. Several assumptions were made in these basin delineations. The assumptions are listed at the end of this chapter. The sewer routing is similar to that shown in the October 2003 presentation to the Town Council. The sizing presented at that meeting has been confirmed/updated in this Master Plan.

2.2 GIS INFORMATION

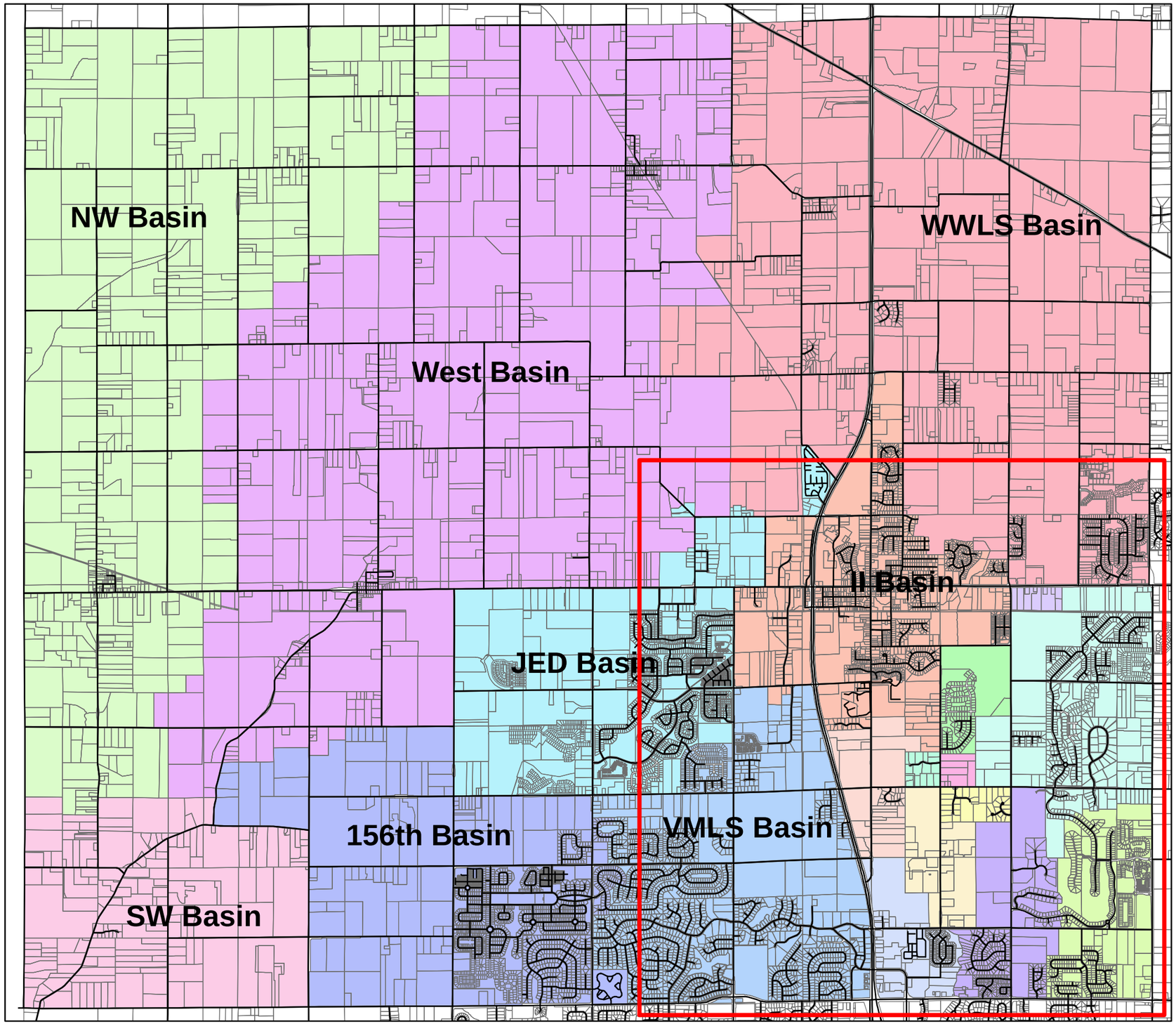
As mentioned above, this Master Plan was performed in GIS. The GIS information that was utilized included the parcels from June 2005 (as a baseline for the current situation) and the 2 and 10 foot contours. The street centerlines and streams shapefiles were utilized to better locate parcels. An aerial photo of Hamilton County was utilized to assist in determining the current land use of the parcels.

2.3 DELINEATION OF INTERCEPTOR BASINS

The interceptor sewer basins were determined by utilizing the 2 foot contours to determine where high points were located. Once high points were located, lines were drawn to connect the high points. These lines were used to delineate interceptor basins to attempt to make sure that as much of the basin as possible could drain by gravity to the wastewater treatment plant. The basin delineations of existing interceptor sewers were only re-drawn if the area is planned to drain to a different, future interceptor sewer, such as the Westside Interceptor. Figure 2-1 shows the interceptor basins. Since the downtown/east side area has smaller basins, Figure 2-2 is a zoomed in portion to show the basin delineations for this area.

Once all of the interceptor basins were delineated, sub-basins were delineated. As was stated above, the proposed interceptors were already determined in the October 2003 presentation to the Town Council. Since these interceptors and their changes in size were known, sub-basins were delineated based on locations of changes in size or additions of an interceptor branch. The sub-basins were delineated based on existing parcel lines, so that no existing parcel would be split by the basin or sub-basin lines. Again, for proposed sewers, the sub-basin lines were drawn based upon the high points separating a branch from a main line or another branch or based upon the location of a change in size. The 2-foot contours were again utilized to determine the high points.

The sub-basins were further broken down into sub-sub-basins. These sub-sub-basins were delineated based upon land use. Therefore, inside one sub-basin, a subdivision, commercial development, employment area, or undeveloped area would receive a different sub-sub-basin delineation than other developments in the sub-basin. The common sub-sub-basin delineations are: existing residential, existing commercial, undeveloped residential, undeveloped commercial, church, and school. When a subdivision was delineated into a sub-sub-basin, the houses inside



Legend

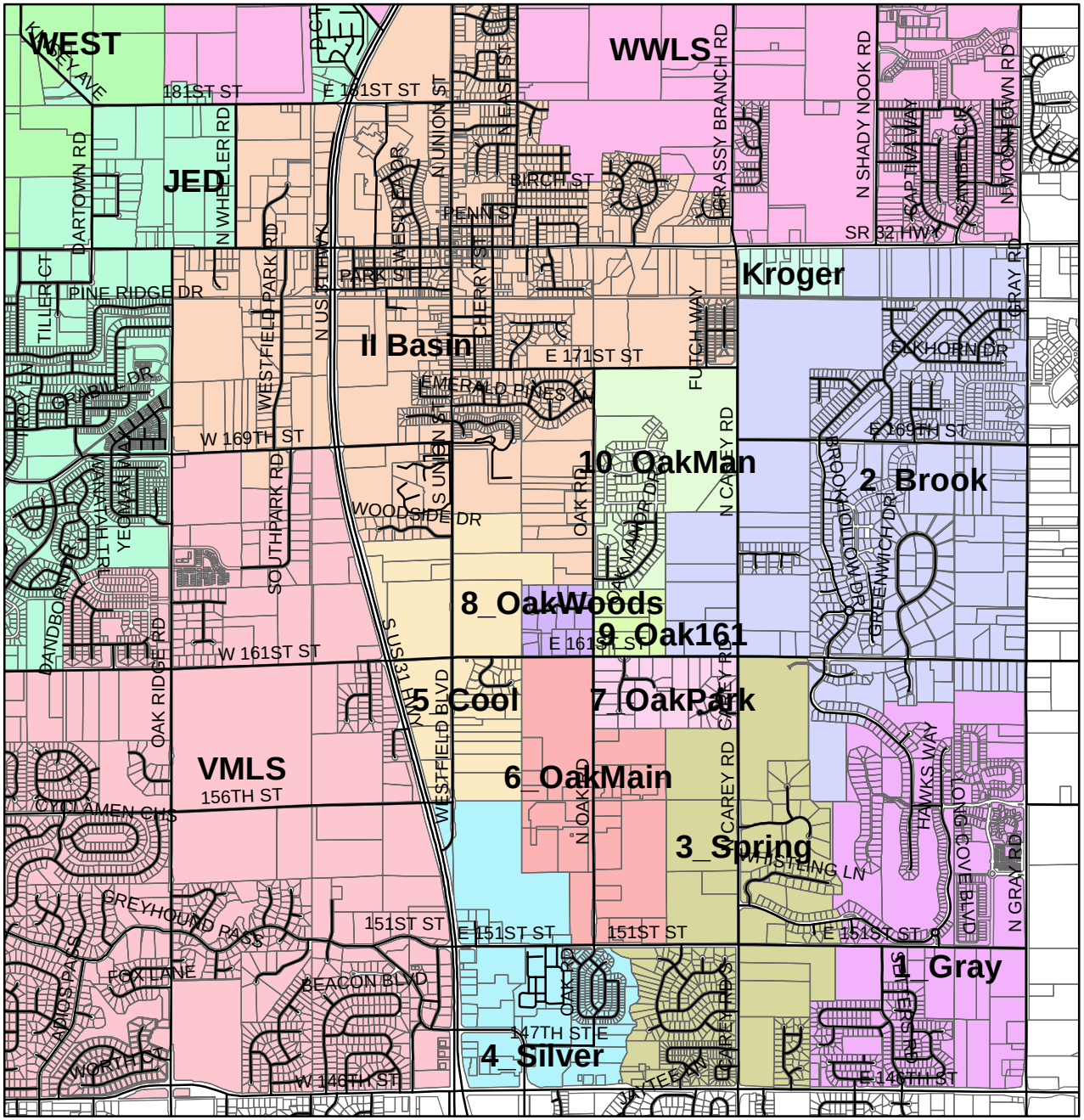
centerline

Basin

- 10_OakMan
- 156TH
- 1_Gray
- 2_Brook
- 3_Spring
- 4_Silver
- 5_Cool
- 6_OakMain
- 7_OakPark
- 8_OakWoods
- 9_Oak161
- II
- JED
- Westfield Marketplace
- NW
- SW
- VMLS
- WEST
- WWLS

Total Basins = 19

Figure 2-1
Basin Delineation
Westfield Wastewater Master Plan
September 2006



Legend

centerline

Basin

- 10_OakMan
- 156TH
- 1_Gray
- 2_Brook
- 3_Spring
- 4_Silver
- 5_Cool
- 6_OakMain
- 7_OakPark
- 8_OakWoods
- 9_Oak161
- II
- JED
- Westfield Marketplace
- NW
- SW
- VMLS
- WEST
- WWLS

Total Basins = 19

Figure 2-2
Basin Delineation (Zoom-In)
Westfield Wastewater Master Plan
September 2006

the subdivision were counted, with one equivalent dwelling unit (EDU) being assigned to each house. For existing residential, the existing houses were counted and one EDU was assigned to each house. For a commercial development or employment area, the area was assumed to develop at rates that were determined in the previous master planning efforts, 3.0 EDUs per acre for commercial and 1.5 EDUs per acre for employment area. The development rates were determined based on the fact that a commercial development would likely be a large water user, while the employment area would be comprised of light industrial development, which would not be a large water user.

For undeveloped areas, the land use was considered. Since most of the township is rural in nature, the existing land use is less than 1.0 EDUs per acre. However, development trends in the area have shown that when the farmland is developed into residential housing developments, the build-out is approximately 3.0 gross EDUs per acre. A gross EDU is defined as the total number of houses divided by the total land area for the entire development. It is normally assumed that 85% of the land is actually developed, with the other 15% being roads, green space, and other areas that do not contain houses. Therefore, 3.0 gross EDUs per acre equates to 2.6 net EDUs per acre (3.0*0.85=2.6). Since some of the township is fairly remote from the Town of Westfield, varying residential land uses were utilized for different portions of the township. The land use assumptions are listed in Section 2.5 below.

To further assist in the master planning, development classes were determined. Therefore, if a development was proposed, it could be considered as already "developed", especially for capacity evaluations of existing interceptors. The development classes were as follows:

- D = developed, as in an existing subdivision
- A = assumed development, as in a proposed subdivision
- ES = existing sewered, as in an existing house/business that is sewered
- EN = existing non-sewered, as in an existing house/business that is not sewered
- U = undeveloped

The assumptions made for each development class are outlined in Section 2.5 below. These development classes are utilized further in Chapter 3 to determine the current and future flows in an interceptor area, such as in the J. Edwards Drain or the Oak Road LS/Cool Creek Interceptor areas, for the capacity evaluations.

2.4 INTERCEPTOR SEWER SIZING

To determine the size of interceptors needed, the ultimate condition for each interceptor basin was evaluated. The ultimate condition is the condition in which all of the undeveloped area is developed at the land uses discussed above. For each EDU, it was assumed that 310 gallons per day (gpd) is the average flow. Once the overall average flow was determined, the peaking factor was calculated by utilizing the IDEM formula (peaking factor = (18+sqrt(P))/(4+sqrt(P)), where P = population in 1,000s). The peak flow was then calculated by multiplying the average flow by the peaking factor. The calculated ultimate peak flow was then utilized to determine the size of the largest interceptor needed for that particular basin, assuming that the sewer would be at

minimum slope. It must be noted that all flows, with the exception of some peak flows in the downtown area, were calculated for this master plan, based on the assumptions and calculations noted above. The downtown area peak flows were determined based upon flow monitoring that was performed in 2003-2004.

For large interceptors, such as the Westside Interceptor, the size of the branches was determined by the same procedure for the sub-basins. When a branch met the main interceptor, the interceptor size was based on the area for both the main interceptor to that point and the branch. This process continued downstream to the most downstream portion of each interceptor. When the most downstream portion was a lift station, such as with the WWLS (Washington Woods Lift Station) basin, the ultimate peak flow for the entire basin was utilized to determine the peak capacity for the ultimate lift station. It must be noted that the large lift stations, including Washington Woods LS and Viking Meadows LS, will be built in stages as growth in the area occurs.

2.5 LIST OF ASSUMPTIONS

This section summarizes the assumptions that were made for the master plan. These are the general assumptions that were made for each area. When specific areas required different assumptions, the assumptions are listed in the specific section within Chapter 3.

Basins

- Basins were delineated based on existing parcel lines, even though the parcels may be subdivided in the future.
- Basins were delineated by utilizing the 2 foot contours available from the Hamilton County GIS website.
- Basins were determined based upon the major interceptors or regional lift stations that flow to Carmel or to the Westfield WWTP (currently or in the future). The basins for regional lift stations, such as the Washington Woods Lift Station, were added to the basin in which they discharge.

Sub-basins

- Sub-basins were delineated based upon major branches of the interceptor sewers.
- Sub-basins were delineated by utilizing the 2 foot contours available from the Hamilton County GIS website.

Sub-sub-basins

- Sub-sub-basins were delineated based upon the land use within the sub-basin. For instance, a subdivision is one sub-sub-basin.
- The EDUs assigned to a sub-sub-basin are net EDUs (meaning that the roads and green space are not included). Gross EDUs (including roads and green space) were utilized for the main EDU assumption. For instance, if the undeveloped land was to be single family homes, it was assigned a gross EDU of 3.0 EDUs per acre. However, the actual

EDU assignment for that land was calculated based upon 3.0 gross EDUs per acre multiplied by 85% (assume that 15% will be used for roads), which comes out to 2.6 net EDUs per acre.

- All land was considered to be developable. Therefore, the other factor of 20% undevelopable that has been utilized in previous master plans was not utilized.
- A development class was determined for each sub-sub-basin. The development classes included: D=developed; A=assumed development (future part of a subdivision, for instance); ES=existing sewered; EN=existing non-sewered; U=undeveloped.
- For development class D, the following assumptions were made:
  - The parcels were counted to determine the number of houses within the development. This parcel count is equal to the EDUs assigned to the development.
- For development class A, the following assumptions were made:
  - If a Planned Urban Development (PUD) exists for the planned development, then the PUD was utilized to determine the number of EDUs to assign to the development.
  - If the subdivision is partially developed, then the part that is parceled was assigned development class D, and the un-parceled portion was assigned development class A. The PUD was utilized to determine the number of EDUs remaining for the un-parceled portion.
- For development class ES or EN, the following assumptions were made:
  - If the ES/EN parcel was a residential parcel, then the EDUs were determined by the land use (one EDU if a single family home, 7.0 gross EDUs per acre if apartments).
  - If the ES/EN parcel was a commercial parcel, then the EDUs were assumed to be 3.0 gross EDUs per acre.
  - If the ES/EN parcel was a church or a school, then the EDUs were based upon 70% of the water usage, 10 month average. The water usage data were provided by the Westfield Public Works Department.
  - If the ES/EN parcel was thought to be sewered, then it was assigned development class ES. If it was thought to not be sewered, then it was assigned development class EN.
- For development class U, the following assumptions were made.
  - If the parcel was in the residential area, then the following residential land uses were utilized. The boundaries listed here are general guidelines.
    - East of Towne Road/Centennial Road – 3.0 gross EDUs per acre

        - West of Towne Road/Centennial Road & South of 186th Street – 2.5 gross EDUs per acre
        - West of Towne Road/Centennial Road & North of 186th Street – 1.5 gross EDUs per acre. This lower land use was utilized to reflect the fact that this section of the township is remote from the town and will like keep its rural nature.

- If the parcel was in the commercial area, then the land use was assumed to be 3.0 gross EDUs per acre.
- If the parcel was in the employment area, then the land use was assumed to be 1.5 gross EDUs per acre.

CHAPTER 3
BASIN DESCRIPTIONS

3.1 INTRODUCTION

This chapter contains the detailed descriptions of each basin. The first two sections deal with existing interceptor basins, so these sections are capacity evaluations. The third section, concerning the Washington Woods Lift Station, deals with a capacity evaluation for the initial lift station as well as ultimate development of the lift station. The same is true for the Viking Meadows Lift Station basin. The remaining sections are dealing with basins for proposed interceptors, so these sections are ultimate development plans rather than capacity evaluations.

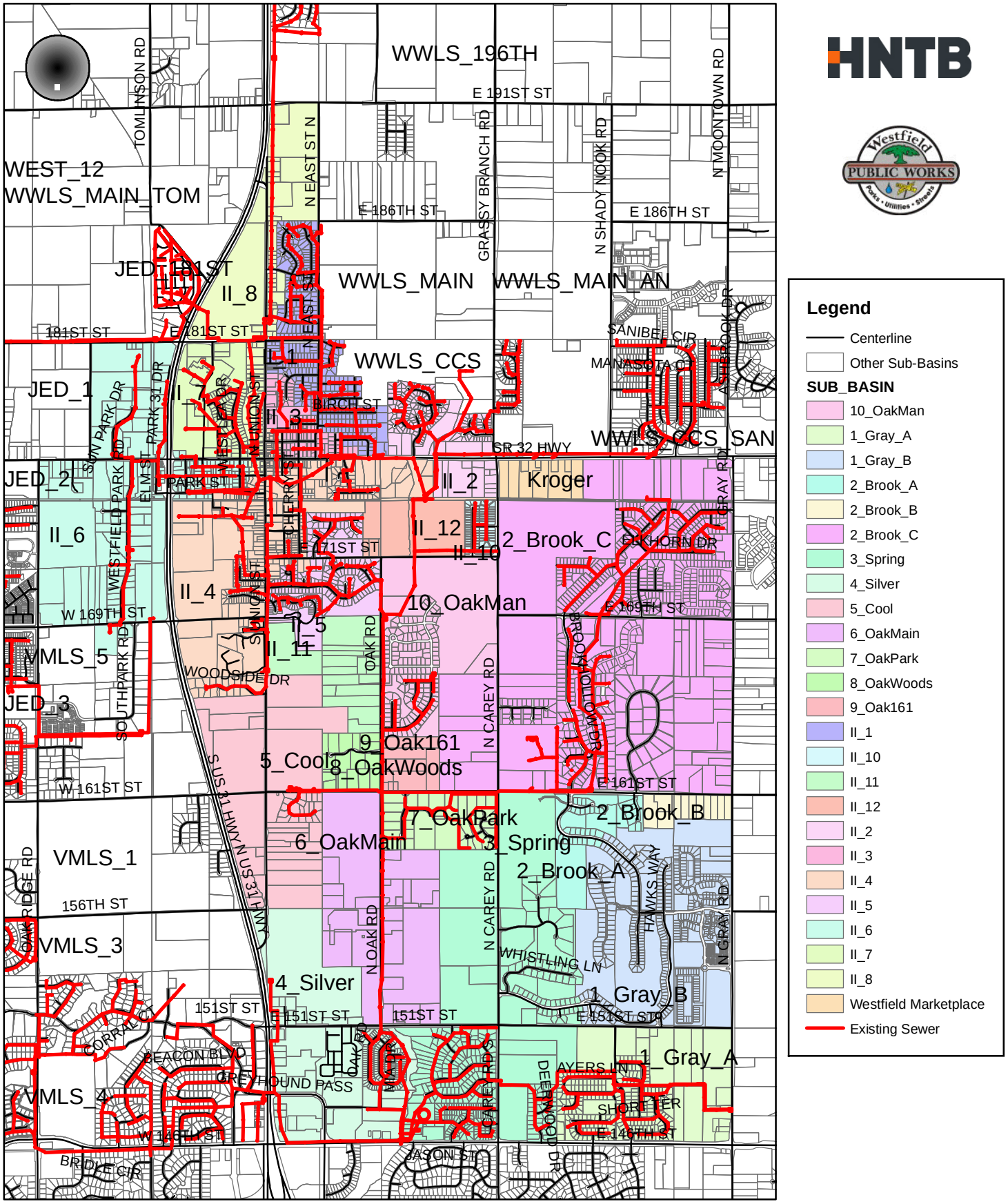
3.2 COOL CREEK INTERCEPTOR/OAK ROAD LS BASINS

The Cool Creek Interceptor/Oak Road LS basins are comprised of the original downtown area (II basin on the mapping) and other areas east of U.S. 31 and south of SR 32. The flow from this basin is conveyed via the Cool Creek Interceptor into the City of Carmel wastewater collection system. Since this area is comprised of several unique interceptor sewers and lift stations, it was broken up into several basins and sub-basins, as is shown on Figure 3-1. This section provides a capacity evaluation for each interceptor basin.

3.2.1 II Basin (Downtown Area)

The II basin is a large area that includes the downtown area as well as much of the surrounding areas. There are several sewers that serve the downtown area, with the oldest sewers in Westfield being located downtown. With this situation, there is a large amount of infiltration and inflow (I/I) that can be found in the downtown area. Flow monitoring was completed in 2004 to determine the extent of the I/I. From this flow monitoring, it was determined that the peak flow from the downtown area was approximately 2.1 million gallons per day (MGD). This flow was the highest flow recorded during a rain event. It must be noted that several projects will be performed to reduce the I/I in the downtown area, including cured-in-place pipe lining for selected downtown sewers and a new ordinance regarding laterals for septic systems that are being abandoned for sewer hookup (the septic tank can no longer be left as a holding tank).

Also included in the II basin are a few newer subdivisions to the east, including Grassy Knoll and Sandpiper Lakes, as well as the Washington Woods Elementary School. Currently, these areas flow into the Oak Road LS either by gravity or by the Sandpiper LS. However, with the new Cool Creek South interceptor, Grassy Knoll and the Washington Woods Elementary School, along with a new commercial development, Oak Manor North, will be routed to the initial Washington Woods LS, which is discussed later in this chapter. The Sandpiper LS will initially continue to pump to the Oak Road LS, since the initial Washington Woods LS is fully allocated. Once the Westside Interceptor is built, the Washington Woods LS can be upgraded, and the Sandpiper LS will be routed away from this basin. It is also possible that the Sandpiper LS could be routed to the Washington Woods LS prior to the Westside Interceptor construction with controls put into place so that the Sandpiper LS and Andover LS cannot pump at the same time.



Legend

- Centerline
- Other Sub-Basins

SUB_BASIN

- 10_OakMan
- 1_Gray_A
- 1_Gray_B
- 2_Brook_A
- 2_Brook_B
- 2_Brook_C
- 3_Spring
- 4_Silver
- 5_Cool
- 6_OakMain
- 7_OakPark
- 8_OakWoods
- 9_Oak161
- II_1
- II_10
- II_11
- II_12
- II_2
- II_3
- II_4
- II_5
- II_6
- II_7
- II_8
- Westfield Marketplace
- Existing Sewer

0 1,500 3,000 6,000 9,000 12,000 Feet

Figure 3-1
Cool Creek/Oak Rd LS Area
Westfield Wastewater Master Plan
September 2006

The II basin all flows to the Oak Road LS. The Oak Road LS is currently the largest lift station in Westfield, and it handles flow from a large service area. The capacity evaluation of this lift station will be discussed later on in this chapter, after all of the basins in the area have been discussed.

3.2.2 Westfield Marketplace (Kroger) Basin

The Westfield Marketplace (Kroger) basin is a small basin that encompasses the new Westfield Marketplace shopping center. The basin drains to the 15-inch interceptor located along SR 32. The interceptor has sufficient capacity to handle the flow from this basin. The 15-inch interceptor eventually flows to the Oak Road LS, which will be discussed later in this chapter. The Kroger basin has been assigned 64 EDUs, based on a commercial land use of 3.0 gross EDUs per acre. The estimated average daily flow is then approximately 20,000 gpd.

3.2.3 10_OakMan Basin

The 10_OakMan basin is the portion of the Oak Manor subdivision (existing and future) that is located west of Carey Road. This basin drains to the Oak Road LS. The portion of the Oak Manor subdivision that is located west of Carey Road has an ultimate build-out of 291 EDUs, which equates to an average flow of approximately 70,000 gallons per day (gpd).

3.2.4 9_Oak161 Basin

The 9_Oak161 basin encompasses an existing residence as well as an undeveloped residential area located at the northeast corner of the intersection of 161st Street and Oak Road. This basin drains to the 18-inch Cool Creek Interceptor just downstream of the discharge point of the Oak Road force main. The undeveloped residential area was assumed to develop at 3.0 gross EDUs per acre. The total number of EDUs assigned to the 9_Oak161 Basin is 88 EDUs, all but 1 of which are currently undeveloped. The ultimate average flow assigned to this basin is then approximately 28,000 gpd.

3.2.5 8_OakWoods Basin

The 8_OakWoods basin includes the Oak Woods subdivision, which is located at the northwest corner of the intersection of 161st Street and Oak Road. The flow from this subdivision drains to the 18-inch Cool Creek Interceptor, just downstream of the discharge point of the Oak Road force main. The total number of EDUs assigned to the basin are 14, for an ultimate average flow of approximately 5,000 gpd.

3.2.6 7_OakPark Basin

The 7_OakPark basin includes the existing Oak Park subdivision as well as the future portions of this subdivision. The basin is located at the southeast corner of the intersection of 161st Street and Oak Road. This subdivision flows to the 18-inch Cool Creek Interceptor, which is located along Oak Road. The undeveloped portions of this subdivision were assumed to be undeveloped residential at 3.0 gross EDUs per acre. The existing EDUs are 32, and the undeveloped EDUs are 45, for a total ultimate EDU count of 77. The ultimate average flow for the 7_OakPark basin is then approximately 24,000 gpd.

3.2.7 6_OakMain Basin

The 6_OakMain basin consists of a few existing houses, although the majority of the basin is undeveloped residential area. This basin is located along Oak Road in between 161st Street and 151st Street. The existing houses and any future residential developments in the 6_OakMain basin would flow directly into the 18-inch or 21-inch Cool Creek Interceptor. It is believed that the existing houses are currently on septic tanks, so they would be hooked onto the sewer if their septic system fails. There are currently 16 existing homes in this basin that are not sewered, while the undeveloped residential area (at 3.0 gross EDUs per acre), is assumed to be an additional 200 EDUs. The ultimate average flow for the 6_OakMain basin is approximately 67,000 gpd.

3.2.8 5_Cool Basin

The 5_Cool basin consists of the existing Cool Creek Circle subdivision, a few existing businesses located off of U.S. 31, and mostly undeveloped commercial and residential area. Some of this area is owned by developers, so portions of the undeveloped area were categorized as future residential/commercial, since they are assumed developments. Currently, the Cool Creek Circle subdivision has a lift station that pumps to a sewer located on Union Street. Once this area begins to develop, a new lift station could be placed at the intersection of 161st Street and Union Street to serve this area. The ultimate lift station would pump to the 21-inch Cool Creek interceptor. The EDUs for the 5_Cool basin are as follows:

- Cool Creek Circle (developed) = 18
- Existing Residential (non-sewered) = 9
- Existing Commercial/Retail (non-sewered) = 5
- Future Residential (assumed development) = 62
- Future Commercial (assumed development) = 177
- Undeveloped Residential = 104
- Total Ultimate EDUs = 375

The EDUs for existing commercial/retail, future residential, future commercial, and undeveloped residential were calculated based upon 3.0 gross EDUs per acre. The ultimate average flow of this basin is approximately 117,000 gpd. The peaking factor was then determined by estimating the population by dividing the average flow by 100 gpd per person. The population was then estimated to be 1,170 people. The IDEM calculation outlined in Chapter 2 was then utilized to determine the peaking factor. With a peaking factor of 3.76, the ultimate peak flow for the 5_Cool basin is approximately 440,000 gpd. The ultimate lift station capacity should then be 310 gallons per minute (gpm), which equates to 446,000 gpd.

3.2.9 4_Silver Basin

The 4_Silver basin is comprised of the Silver Thorne subdivision, the Tree Top apartments, existing retail/commercial along U.S. 31, and Hamilton County's Cool Creek Park. There is no undeveloped area in this basin. A portion of the basin drains to an 8-inch sewer that flows into

the Carmel connection point, and a portion of the basin drains to the 15-inch interceptor from the area located west of U.S. 31. The EDUs for this basin are as follows:

- Silver Thorne (developed) = 158
- Tree Top Apartments (developed) = 143
- Existing Retail/Commercial (sewered) = 329
- Cool Creek Park (sewered) = 0
- Total Ultimate EDUs = 630

The EDUs for the Tree Top apartments and existing retail/commercial were calculated based upon 7.0 and 3.0 gross EDUs per acre, respectively. The portion of the area that drains to the 8-inch sewer are Silver Thorne and Tuttle Grove apartments, while the existing retail/commercial area drains to the 15-inch interceptor. Ultimately, the 15-inch interceptor service area will decrease, because much of this area will flow to the Viking Meadows LS in the future. Therefore, the 15-inch interceptor has sufficient capacity to handle the ultimate flows from the existing retail/commercial area. The ultimate average flow from the 8-inch sewer service area, 301 EDUs, is approximately 93,300 gpd. With a peaking factor of 3.82, the ultimate peak flow into the 8-inch sewer is approximately 356,000 gpd. The capacity of an 8-inch sewer at minimum slope is 490,000 gpd, so the 8-inch sewer has sufficient capacity to handle flows from the Silver Thorne subdivision and Tuttle Grove apartments.

3.2.10 3_Spring Basin

The 3_Spring basin includes the Brentwood Village, Bridlewood, Spring Meadows, and Village Park Estates subdivisions as well as portions of the Bridgewater Club subdivision. The basin also includes existing retail/commercial area located on the north side of 146th Street, large estates, and some large undeveloped areas. The basin flows into a 12-inch sewer that flows into the Carmel connection point. The ultimate EDUs for this basin are as follows:

- Brentwood Village (developed) = 38
- Bridgewater Club (Sections A, B, & C - developed) = 88
- Bridlewood (developed) = 137
- Spring Meadows (developed) = 29
- Village Park Estates (developed) = 83
- Existing Residential (existing sewered) = 3
- Existing Commerical/Retail (existing sewered) = 36
- Municipal/Utility (water tower & Carmel connection point) = 0
- Undeveloped Residential = 276
- Total Ultimate EDUs = 690

The EDUs for the existing commercial/retail and undeveloped residential areas were calculated based upon 3.0 gross EDUs per acre. The total ultimate average flow is approximately 214,000 gpd. With a peaking factor of 3.56, the ultimate peak flow for the 3_Spring basin is approximately 760,000 gpd. A 12-inch sewer at minimum slope has a capacity of 1,100,000 gpd, so the sewer has sufficient capacity to convey the flows from the 3_Spring basin.

3.2.11 2_Brook Basin

The 2_Brook basin includes the Brookside, Carey Glen, Crestview, Summit Lakes, Woodshire, and portions of the Oak Manor and Bridgewater Club subdivisions. The basin drains to the Brookside LS, which has been upgraded once and will be upgraded once more to its ultimate capacity of 970 gpm, which equals approximately 1,400,000 gpd. The Brookside LS then pumps into the 21-inch Cool Creek Interceptor. The EDUs for the basin are as follows:

- Bridgewater Club (developed) = 78
- Brookside (developed/assumed development) = 195
- Carey Glen (developed) = 25
- Crestview (developed) = 240
- Summit Lakes (developed/assumed development) = 135
- Oak Manor (developed – portion east of Carey Road) = 475
- Woodshire (existing non-sewered) = 29
- Carey Ridge Elementary School (existing sewered) = 5
- Existing Residential (sewered) = 19
- Existing Residential (non-sewered) = 12
- Undeveloped Residential = 102
- Undeveloped Employment Area = 30
- Total Ultimate EDUs = 1,345

The EDUs for the undeveloped residential and undeveloped employment areas were calculated based on 0.5 gross EDUs per acre. This reduced development rate was assumed to ensure that the Brookside Lift Station does not exceed its planned capacity. With an ultimate build-out of 1,345 EDUs, the ultimate average flow is approximately 419,000 gpd. The peaking factor for this area is 3.32, and the ultimate peak flow is then 1,390,000. Therefore, the EDU assumption for the undeveloped areas of 0.5 gross EDUs per acre is a valid assumption to make sure that the lift station will not exceed its ultimate capacity. In order to develop these areas at more than 0.5 gross EDUs per acre, the ultimate lift station would have to be larger than planned. A facility plan could be performed at the time of the ultimate expansion to determine if this is possible for the pumps, wet well, force main, and receiving sewer.

3.2.12 1_Gray Basin

The 1_Gray basin includes the majority of the Bridgewater Club subdivision as well as the Setters Place and Setters Run subdivisions. The basin also includes some existing residential and commercial areas as well as some undeveloped residential area. The 1_Gray basin drains to the Setters Run LS, which was recently upgraded to a peak capacity of 1,125 gpm (1,620,000 gpd) with two pumps running. The Setters Run LS currently pumps into the 21-inch Cool Creek Interceptor. Ultimately, the Setters Run LS will pump to the Viking Meadows LS. The EDUs for the basin are as follows:

- Bridgewater Club (developed/assumed development) = 959
- Setters Place (developed) = 39
- Setters Run (developed) = 178

- Existing Residential (non-sewered) = 2
- Existing Commercial (non-sewered) = 17
- Undeveloped Residential = 88
- Total Ultimate EDUs = 1,283

Therefore, the ultimate average flow is approximately 399,000 gpd. With a peaking factor of 3.33, the ultimate peak flow is approximately 1,330,000 gpd. Therefore, the Setters Run LS has sufficient capacity to convey flows from the 1_Gray basin.

3.2.13 Oak Road LS Capacity Evaluation

As discussed above, the basins that drain to the Oak Road LS are II, Kroger, and 10_OakMan. Table 3-1 shows the capacity evaluation of the Oak Road LS for both the current and ultimate conditions. Currently, the Oak Road LS handles flow from the downtown area, including the Sandpiper LS, the Kroger basin, and the 10_OakMan basin. As can be seen from the table, the Oak Road LS is currently near its peak capacity, with enough capacity to handle the development of the Old Haskett property at 103 EDUs and the Carey Shops commercial development at 25 EDUs. Other than that, no new development in the Oak Road LS area can occur until the Sandpiper LS is removed from the service area. Once the Sandpiper LS is routed to the Washington Woods LS, the Oak Road LS will have the peak capacity to accept the development of an additional 600 EDUs, which is more than adequate to build-out the entire Oak Road LS service area.

3.2.14 Cool Creek Interceptor Capacity Evaluation

The Cool Creek Interceptor has two sizes, 18-inch and 21-inch. The 18-inch interceptor serves the Oak Road LS as well as the 9_Oak161, 8_OakWoods, 7_OakPark, and a portion (approx. 2/3) of the 6_Oak Main basins. Table 3-2 shows the interceptor capacity at the current and ultimate condition. Since the Oak Road LS pumps at a peak flow of 1,600,000 gpd, it was assumed that it pumps 1,600,000 gpd. The same is true of the Brookside LS. As can be seen from the table, the 18-inch interceptor has no capacity issues currently, but it may have capacity issues in the future. It is possible that the ultimate peak flow will be less than predicted, since the calculations have utilized a conservative peaking factor. Flow monitoring should be completed to make sure that the capacity is not met or exceeded in the future.

Table 3-3 shows the capacity evaluation for the 21-inch Cool Creek Interceptor. This interceptor will ultimately receive flow from the Oak Road LS, the Brookside LS, and the 9_Oak161, 8_Oak Woods, 7_OakPark, 6_OakMain, and 5_Cool basins. The Setters Run LS currently pumps to the 21-inch interceptor, but it will ultimately pump to the Viking Meadows LS. Once again, the peak flows of the lift stations were utilized instead of EDUs because the lift station will pump at its peak flow. As can be seen from the table, the 21-inch Cool Creek Interceptor has sufficient capacity to handle the current peak flows, but it appears to not have sufficient capacity to handle all of the ultimate peak flows. It is likely, however, that other flows could be diverted from this service area to the Viking Meadows LS via another lift station. If it appears that the 18- or 21-inch interceptor is approaching its capacity, a facility plan should be performed for this area to determine the actual ultimate needs.

TABLE 3-1
OAK ROAD LS CAPACITY EVALUATION

Contributing Basin	Estimated EDUs	Estimated Flow (gpd)
Current Condition		
Westfield Marketplace	64	20,000
II (not included in downtown area)	532	165,000
Carey Shops	25	8,000
Old Haskett Property	103	32,000
10_OakMan	291	91,000
Total Avg. Flow		316,000
Peaking Factor	3.42	
Peak Flow (above)		1,082,000
Sandpiper Peak Flow		590,400
Peak Flow from downtown		2,100,000
Total Peak Flow		3,772,000
Peak Flow to Lagoons		(2,232,000)
Peak Flow at LS		1,540,000
Peak Capacity of LS		1,600,000
Available Capacity		60,000
Ultimate Condition		
Westfield Marketplace	64	20,000
II (not included in downtown area)	635	197,000
Carey Shops	25	8,000
Old Haskett Property	103	32,000
10_OakMan	291	91,000
Undeveloped Area	600	186,000
Total Avg. Flow		534,000
Peaking Factor	3.22	
Peak Flow (above)		1,720,000
Peak Flow from downtown		2,100,000
Total Peak Flow		3,820,000
Peak Flow to Lagoons		(2,232,000)
Peak Flow at LS		1,588,000
Peak Capacity of LS		1,600,000
Available Capacity		12,000

TABLE 3-2
18-INCH COOL CREEK INTERCEPTOR CAPACITY EVALUATION

Contributing Basin	Estimated EDUs	Estimated Flow (gpd)
Current Condition		
9_Oak161	0	0
8_OakWoods	14	4,340
7_OakPark	77	23,870
6_OakMain (2/3)*	0	0
Total Avg. Flow		28,210
Peaking Factor	4.09	
Peak Flow (above)		115,000
Oak Rd LS Peak Flow		1,600,000
Brookside LS Peak Flow		790,000
Total Peak Flow		2,505,000
Capacity of 18-inch**		2,800,000
Available Capacity		295,000
Ultimate Condition		
9_Oak161	88	27,280
8_OakWoods	14	4,340
7_OakPark	77	23,870
6_OakMain (2/3)*	144	44,640
Total Avg. Flow		100,130
Peaking Factor	3.80	
Peak Flow (above)		380,000
Oak Rd LS Peak Flow		1,600,000
Brookside LS Peak Flow		1,400,000
Total Peak Flow		3,380,000
Capacity of 18-inch**		2,800,000
Available Capacity		(580,000)

* It is assumed the 2/3 of 6_OakMain will flow to the 18-inch interceptor, and the other 1/3 will flow to the 21-inch interceptor.

** The slope of the 18-inch interceptor varies from manhole to manhole. The slope in the line is generally 0.17% or greater, with a few exceptions, so the capacity is based on an 18-inch sewer at a slope of 0.17%. For the portions of the interceptor that have a slope less than 0.17%, it is possible that the sewer will be surcharged slightly.

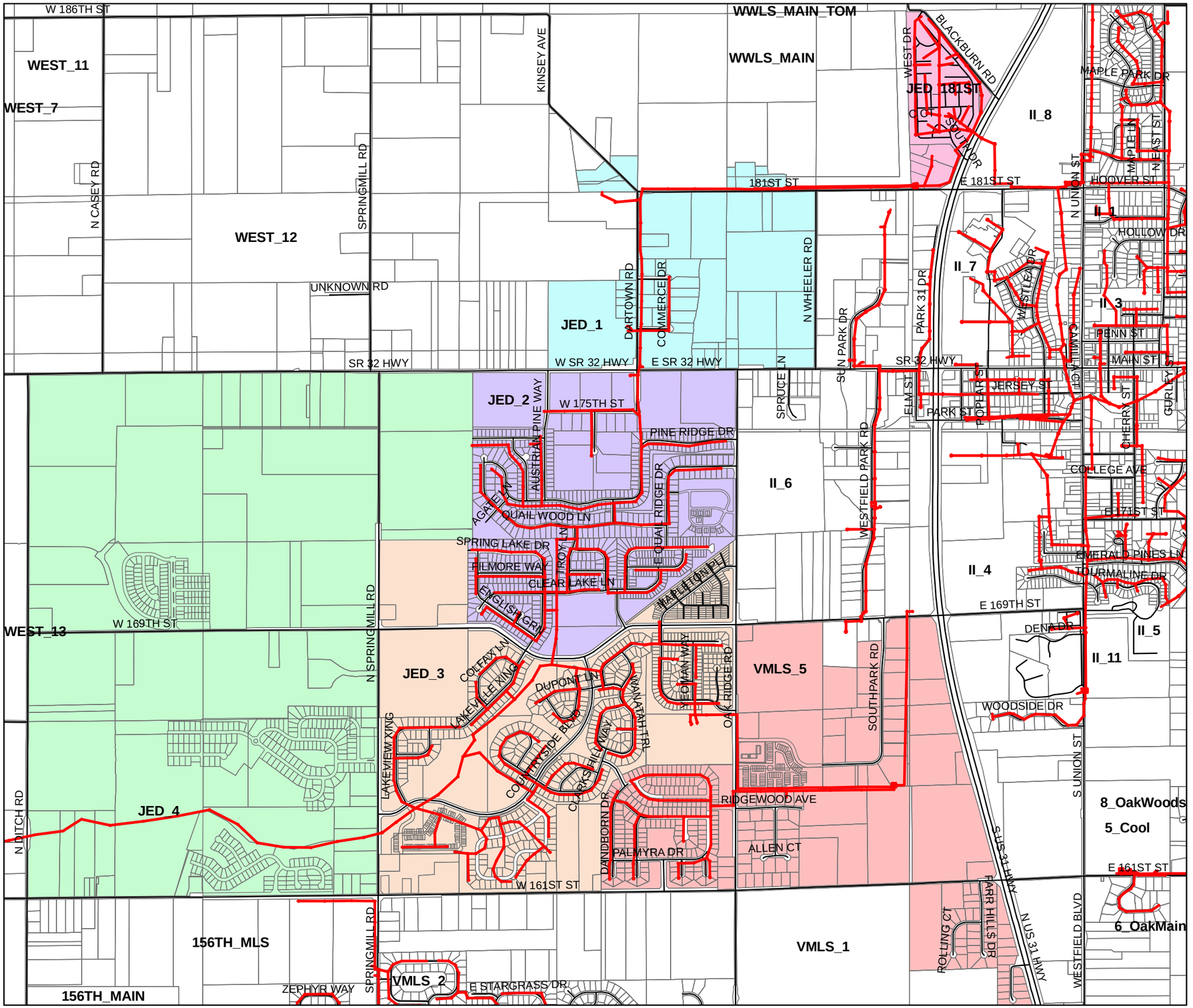
TABLE 3-3
21-INCH COOL CREEK INTERCEPTOR CAPACITY EVALUATION

Contributing Basin	Estimated EDUs	Estimated Flow (gpd)
Current Condition		
9_Oak161	0	0
8_OakWoods	14	4,340
7_OakPark	77	23,870
6_OakMain	0	0
5_Cool	257	79,670
Total Avg. Flow		107,900
Peaking Factor	3.78	
Peak Flow (above)		408,000
Oak Rd LS Peak Flow		1,600,000
Brookside LS Peak Flow		790,000
Total Peak Flow		2,800,000
Capacity of 21-inch*		3,400,000
Available Capacity		600,000
Ultimate Condition		
9_Oak161	88	27,280
8_OakWoods	14	4,340
7_OakPark	77	23,870
6_OakMain	216	32,000
5_Cool	375	116,250
Total Avg. Flow		203,740
Peaking Factor	3.58	
Peak Flow (above)		730,000
Oak Rd LS Peak Flow		1,600,000
Brookside LS Peak Flow		1,400,000
Total Peak Flow		3,730,000
Capacity of 21-inch*		3,400,000
Available Capacity		(330,000)

* The slope of the 21-inch interceptor varies from manhole to manhole. The slope is generally 0.11% or greater, with a few exceptions, so the capacity was based upon a 21-inch sewer at a slope of 0.11%. For the sections that have a slope less than 0.11%, it is possible that the sewer will become slightly surcharged.

3.3 J. EDWARDS DRAIN INTERCEPTOR BASIN

This section describes the interceptor sewers that are necessary to convey flow from the drainage area of the J. Edwards Drain Interceptor. Figure 3-2 shows the sewer sub-basins of the J. Edwards Drain Interceptor. The original J. Edwards Drain Interceptor basin was larger than that shown on Figure 3-2. However, the interceptor was sized based on land use densities as low as 1.0 gross EDUs per acre. The interceptor service area has actually developed at closer to 2.5-3.0 gross EDUs per acre, which has created more flow for the service area than anticipated when the



0 750 1,500 3,000 4,500 6,000 Feet

HNTB

Westfield PUBLIC WORKS Parks • Utilities • Streets

Legend

- Centerline
- Other Sub-Basins

SUB_BASIN

- JED_1
- JED_2
- JED_3
- JED_4
- VMLS_5
- JED_181ST
- Existing Sewer

Figure 3-2
J. Edwards Drain Interceptor Service Area
Westfield Wastewater Master Plan
September 2006

interceptor was designed. Therefore, the interceptor basin was decreased in size to accommodate the capacity of the interceptor. With the planning of the Westside Interceptor and the 156th Street Interceptor, these sewers will drain portions of the original J. Edwards Drain Interceptor basin.

Unlike most of the sewers in the Master Plan, the J. Edwards Drain Interceptor is an existing sewer. Therefore, the master planning is performed to determine how much capacity the interceptor has left for future development. The interceptor starts as a 12-inch sewer near the corner of Dartown Road and 181st Street. The 12-inch sewer follows Dartown Road south to State Road 32, where it becomes a 15-inch sewer. The 15-inch sewer meanders south through the Pine Ridge/Quail Ridge and Countryside subdivisions to the intersection of 169th Street and Countryside Boulevard, where it becomes an 18-inch sewer. The 18-inch sewer follows the legal drain through the remainder of the Countryside subdivision to Spring Mill Road, where it becomes a 24-inch sewer. The 24-inch sewer follows the legal drain to Little Eagle Creek Road, where it becomes a 36-inch sewer to the wastewater treatment plant. The 36-inch interceptor (capacity = 9.2 MGD) does not receive any more flow than the 24-inch interceptor, so it is excluded from the capacity analysis.

Assumptions in this analysis include: development will occur at 3.0 gross EDUs per acre for residential and commercial undeveloped areas, undeveloped employment areas will develop at 1.5 gross EDUs per acre, and the capacities of the initial Washington Woods Lift Station and Tomlinson Road Lift Station are 440 gpm and 353 gpm, respectively.

3.3.1 12-Inch Interceptor

The 12-inch interceptor does not receive much gravity flow (see JED_1 on Figure 3-2). However, it receives flow currently from the Tomlinson Road Lift Station and the 181st Street Lift Station (at the trailer park). In addition to these lift stations, the 12-inch interceptor will also receive flow from the initial Washington Woods LS. The Washington Woods LS and the Tomlinson Road LS will share an 8-inch force main, so it is imperative that these stations be controlled so that they do not pump at the same time. The Washington Woods LS has much more storage capacity than the Tomlinson Road LS, so the Tomlinson Road LS should receive precedence for pumping over the Washington Woods LS. The 181st Street LS receives large amounts of wet weather flow, so this analysis considers the 181st Street LS pumping at the same time as the Washington Woods LS or Tomlinson Road LS. It must be noted that the I/I in the 181st Street LS service area has been reduced somewhat and is continuing to be reduced by the Westfield Public Works Department.

With these controls, the 12-inch interceptor should have no capacity issues (see Table 3-4). In Table 3-4, it must be noted that the Washington Woods LS was utilized for the capacity analysis, since it has a higher capacity than the Tomlinson Road LS, and the two stations cannot pump at the same time. Note that the future capacity does not include the Washington Woods LS capacity or the Tomlinson Road LS capacity, since both of these lift stations will eventually be routed to the 42-inch Westside Interceptor.

TABLE 3-4
SUMMARY OF FLOWS TO 12-INCH J. EDWARDS DRAIN INTERCEPTOR

Contributing Area	Estimated EDUs	Estimated Avg. Flow (gpd)
Existing Residential	12	3,720
Medical Clinic	10	3,135
Alpha Tau Industrial Park	3	1,068
Existing Employment Area	4	1,384
Total	30	9,307
Current Capacity		
Average Flow (from areas above)	9,000	gpd
Peaking Factor	4.3	
Peak Flow (from areas above)	38,000	gpd
Peak Flow (181st Street LS - new flow 165 gpm)	237,600	gpd
Peak Flow (from 440 gpm Washington Woods LS)	634,000	gpd
Total Peak Flow	909,600	gpd
Capacity of 12-inch Interceptor	1,100,000	gpd
Current Capacity Remaining	**190,400**	gpd
Ultimate Capacity		
Undeveloped Employment Area	193	59,797
Total Ultimate EDUs (current + future)	223	69,104
Peaking Factor	3.9	
Peak Flow (current + future)	269,350	
Peak Flow (181st Street LS - new flow 165 gpm)	237,600	
Total Ultimate Peak Flow	506,950	
Capacity of 12-inch Interceptor	1,100,000	
Ultimate Capacity Remaining	**593,050**	gpd

3.3.2 15-Inch Interceptor

Table 3-5 shows the capacity analysis of the 15-inch interceptor. The 15-inch sewer was determined to have a capacity of approximately 1.6 MGD, based on 1995 drawings from Wiehe Engineers. The flows that go into the 15-inch interceptor (see JED_2 on Figure 3-2 for service area) include flows from several businesses located near State Road 32, Pine Ridge/Quail Ridge subdivision, a portion of the Countryside subdivision, and all of the flow from the 12-inch interceptor. The future flow that will enter the 15-inch interceptor includes a small residential area. The 15-inch interceptor has sufficient capacity to convey the ultimate flows. However, the 15-inch interceptor currently has a peak capacity deficiency, so no development can be allowed in this area or upstream in the 12-inch area until the Washington Woods LS and Tomlinson Road LS are removed.

TABLE 3-5
SUMMARY OF FLOWS TO 15-INCH J. EDWARDS DRAIN INTERCEPTOR

Contributing Area	Estimated EDUs	Estimated Avg. Flow (gpd)
Flow from 12-inch Interceptor	30	9,307
Pine Ridge/Quail Ridge	329	101,990
Countryside	317	98,270
Municipal/Government	5	1,395
Tiller Industrial Park	4	1,139
Total	684	212,101
Current Capacity		
Average Flow (from areas above)	210,000	gpd
Peaking Factor	3.6	
Peak Flow (from areas above)	750,000	gpd
Peak Flow (181st Street LS - new flow 165 gpm)	237,600	gpd
Peak Flow (from 440 gpm Washington Woods LS)	634,000	gpd
Total Peak Flow	1,621,600	gpd
Capacity of 15-inch Interceptor	1,620,000	gpd
Current Capacity Remaining	**-1,600**	gpd
Ultimate Capacity		
Undeveloped Area from 12-inch	193	59,797
Undeveloped Employment Area	60	18,727
Undeveloped Residential	43	13,180
Total Ultimate EDUs (current + future)	980	303,805
Peaking Factor	3.4	
Peak Flow (current + future)	1,044,406	
Peak Flow (181st Street LS - new flow 165 gpm)	237,600	
Total Ultimate Peak Flow	1,282,006	
Capacity of 15-inch Interceptor	1,620,000	
Ultimate Capacity Remaining	**337,994**	gpd

3.3.3 18-Inch Interceptor

Table 3-6 shows the capacity analysis of the 18-inch interceptor. The 18-inch interceptor has a capacity of approximately 2.4 MGD. The flows conveyed by the 18-inch interceptor (see JED_3 on Figure 3-2) include flows from the 15-inch interceptor, a portion of the Countryside subdivision, and flows from the South Park Lift Station (see VMLS_5 on Figure 3-2 for service area). A portion of the Countryside subdivision (approximately 200 homes) as well as the South Park industrial park currently discharge into the South Park Lift Station. However, the South Park Lift Station will eventually be removed from the J. Edwards Drain Interceptor area to flow by gravity to the Viking Meadows Lift Station. As can be seen from the table, the 18-inch interceptor has sufficient capacity to convey the current and future flows, although no additional

development can be allowed in the 18-inch area or upstream until the Washington Woods LS and Tomlinson Rd LS are removed.

TABLE 3-6
SUMMARY OF FLOWS TO 18-INCH J. EDWARDS DRAIN INTERCEPTOR

Contributing Area	Estimated EDUs	Estimated Avg. Flow (gpd)
Flow from 15-inch Interceptor	684	212,101
Mapleton at Countryside	170	52,700
Countryside	654	202,740
Villas at Oak Ridge Condominiums	24	7,440
Oak Trace Elementary	9	2,821
Trailer Park (181st St LS - use EDUs)	157	48,670
Total	1698	526,472
Current Capacity		
Average Flow (from areas above)	530,000	gpd
Peaking Factor	3.2	
Peak Flow (from areas above)	1,707,000	gpd
Peak Flow (from 440 gpm Washington Woods LS)	634,000	gpd
Total Peak Flow	2,341,000	gpd
Capacity of 18-inch Interceptor	2,360,000	gpd
Current Capacity Remaining	**19,000**	gpd
Ultimate Capacity		
Undeveloped Area from 15-inch	296	91,704
Existing Non-Sewered Area	8	335,712
Undeveloped Commercial Area	37	11,382
Undeveloped Residential*	187	57,867
Total Ultimate EDUs (current + future)	2,225	689,885
Peaking Factor	3.1	
Total Ultimate Peak Flow	2,147,410	
Capacity of 18-inch Interceptor	2,360,000	
Ultimate Capacity Remaining	**212,590**	gpd

3.3.4 24-Inch Interceptor

Table 3-7 shows the capacity analysis of the 24-inch interceptor. The 24-inch interceptor has a capacity of approximately 4.15 MGD. The flows conveyed by the 24-inch interceptor (see JED_4 on Figure 3-2) are currently the same as the flows conveyed by the 18-inch interceptor. Future flows into the 24-inch interceptor include the Maple Knoll subdivision and other nearby undeveloped and existing areas.

The area located to the west of Ditch Road was initially located in the JED_4 sub-basin. However, this area, along with Maple Knoll allocated at 1,800 EDUs, will cause the 24-inch interceptor to be above its capacity. Therefore, the area to the west of Ditch Road was added to the 156th Street Interceptor basin. With this change, the 24-inch interceptor will have sufficient capacity to convey the current and future flows. Please note a slight deficiency in future capacity is shown on Table 3-7, but there are many future EDUs assumed at this point, so a deficiency of 0.3 MGD is not necessarily what will happen. The development that is allowed in the J. Edwards Drain Interceptor area will have to be closely watched to ensure that the 24-inch interceptor will not become overloaded.

TABLE 3-7
SUMMARY OF FLOWS TO 24-INCH J. EDWARDS DRAIN INTERCEPTOR

Contributing Area	Estimated EDUs	Estimated Avg. Flow (gpd)
Flow from 18-inch Interceptor	1698	526,472
Maple Knoll – residential (10 yr build-out)	1800	558,000
Maple Knoll - non-residential	9	2,821
Church	10	3,100
Total	3517	1,090,393
Current Capacity		
Average Flow (from areas above)	1,090,000	gpd
Peaking Factor	2.9	
Peak Flow (from areas above)	3,180,000	gpd
Peak Flow (from 440 gpm Washington Woods LS)	634,000	gpd
Total Peak Flow	3,814,000	gpd
Capacity of 24-inch Interceptor	4,150,000	gpd
Capacity Remaining	**336,000**	gpd
Ultimate Capacity		
Undeveloped Area from 18-inch	527	91,704
Existing Non-Sewered Area	208	335,712
Undeveloped Commercial Area	277	85,870
Undeveloped Residential*	704	218,133
Total Ultimate EDUs (current + future)	5,233	1,622,167
Peaking Factor	2.7	
Total Ultimate Peak Flow	4,451,194	
Capacity of 24-inch Interceptor	4,150,000	
Ultimate Capacity Remaining	**-301,194**	gpd

3.4 WASHINGTON WOODS LIFT STATION BASIN

The Washington Woods Lift Station is planned to be a large, regional lift station to convey flow from the northeast corner of the township to the Westside WWTP via the Westside Interceptor.

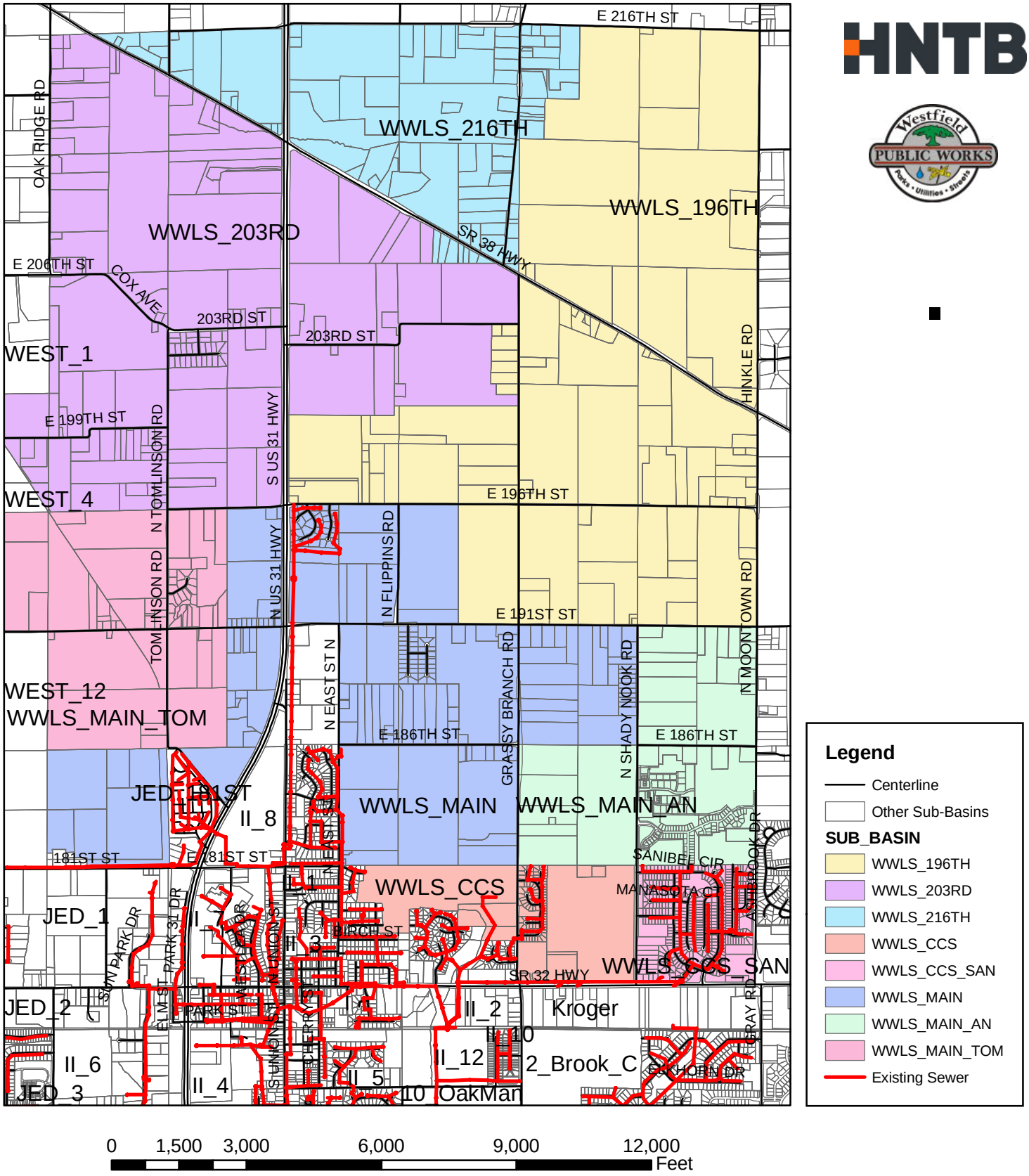
Figure 3-3 shows the ultimate service area for the Washington Woods LS. The lift station will be constructed in phases as growth occurs, with the initial phase currently under construction. The initial lift station will accept flow from the initial Andover LS, the Sandpiper LS, the Oak Manor North commercial development, and the Grassy Branch subdivision. It must be noted that the initial lift station is sized at 440 gpm, which will only to handle flow from either the Andover LS 320 gpm) or the Sandpiper LS (410 gpm) at any given time. Therefore, the Andover and Sandpiper lift stations must be controlled so that they cannot pump at the same time. Since the Andover LS has a larger wet well and smaller pumping capacity than the Sandpiper LS, it should be controlled to not pump when the Sandpiper LS is running or calling to run.

The Tomlinson Road LS (WWLS_MAIN_TOM on Figure 3-3) currently pumps into the same force main as the Washington Woods LS. As mentioned above, the two lift stations should be controlled so that the Washington Woods LS will not pump if the Tomlinson Road LS is calling to pump. Figure 3-4 shows the proposed sewers. As can be seen from the figure, the Tomlinson Road LS service area will eventually drain by gravity to the Washington Woods LS. Therefore, as growth occurs and the gravity sewer is constructed, the Tomlinson Road LS will be taken off-line and abandoned.

The area located directly south of the Tomlinson Road LS sub-basin is currently shown as being allocated to the main Washington Woods sewer. However, it is likely that once the Washington Woods LS is flowing to the Westside Interceptor instead of the J. Edwards Drain Interceptor, this area will be re-allocated to the J. Edwards Drain Interceptor, to which it naturally drains. This area was removed from the original J. Edwards Drain Interceptor service area to accommodate the increased flows in the 15-inch and 18-inch interceptor areas. However, the area will likely drain by gravity to the 12-inch J. Edwards Drain Interceptor if it is developed. The flows in the downstream sewers must be checked prior to re-assigning this area to the J. Edwards Drain Interceptor from Washington Woods.

Currently, the force main to which the Washington Woods LS and Tomlinson Road LS discharge conveys the flow to the 12-inch J. Edwards Drain Interceptor. As discussed above, the flow from these lift stations takes up much of the available capacity of the 12-, 15-, and 18-inch J. Edwards Drain Interceptor. The size of the Washington Woods LS is also limited to 440 gpm as long as its force main discharges to the J. Edwards Drain Interceptor. Therefore, in order to allow more development in the J. Edwards Drain Interceptor and Washington Woods LS service areas, the Westside Interceptor (discussed below) should be constructed. Construction of the Westside Interceptor will open up development in both of these large interceptor basins.

As can be seen from Figure 3-4, the Washington Woods LS service area contains several large, undeveloped sub-basins (WWLS_216TH, WWLS_203RD, and WWLS_196TH) that will drain to their own lift stations. Each of the lift stations will pump to the main interceptor that flows to the Washington Woods LS. WWLS_MAIN_AN, which represents the Andover LS service area, and WWLS_CCS_SAN, which represents the Sandpiper LS service area, also represent lift stations that will convey flow to the Washington Woods LS. The lift stations will be sized to handle the ultimate flow from their service area. The Sandpiper LS is currently being upgraded to its ultimate capacity of 410 gpm. The wet well of the Andover LS is sized to ultimately handle flow



Legend

- Centerline
- Other Sub-Basins

SUB_BASIN

- WWLS_196TH
- WWLS_203RD
- WWLS_216TH
- WWLS_CCS
- WWLS_CCS_SAN
- WWLS_MAIN
- WWLS_MAIN_AN
- WWLS_MAIN_TOM
- Existing Sewer

0 1,500 3,000 6,000 9,000 12,000 Feet

Figure 3-3
Washington Woods Lift Station Service Area
Westfield Wastewater Master Plan
September 2006

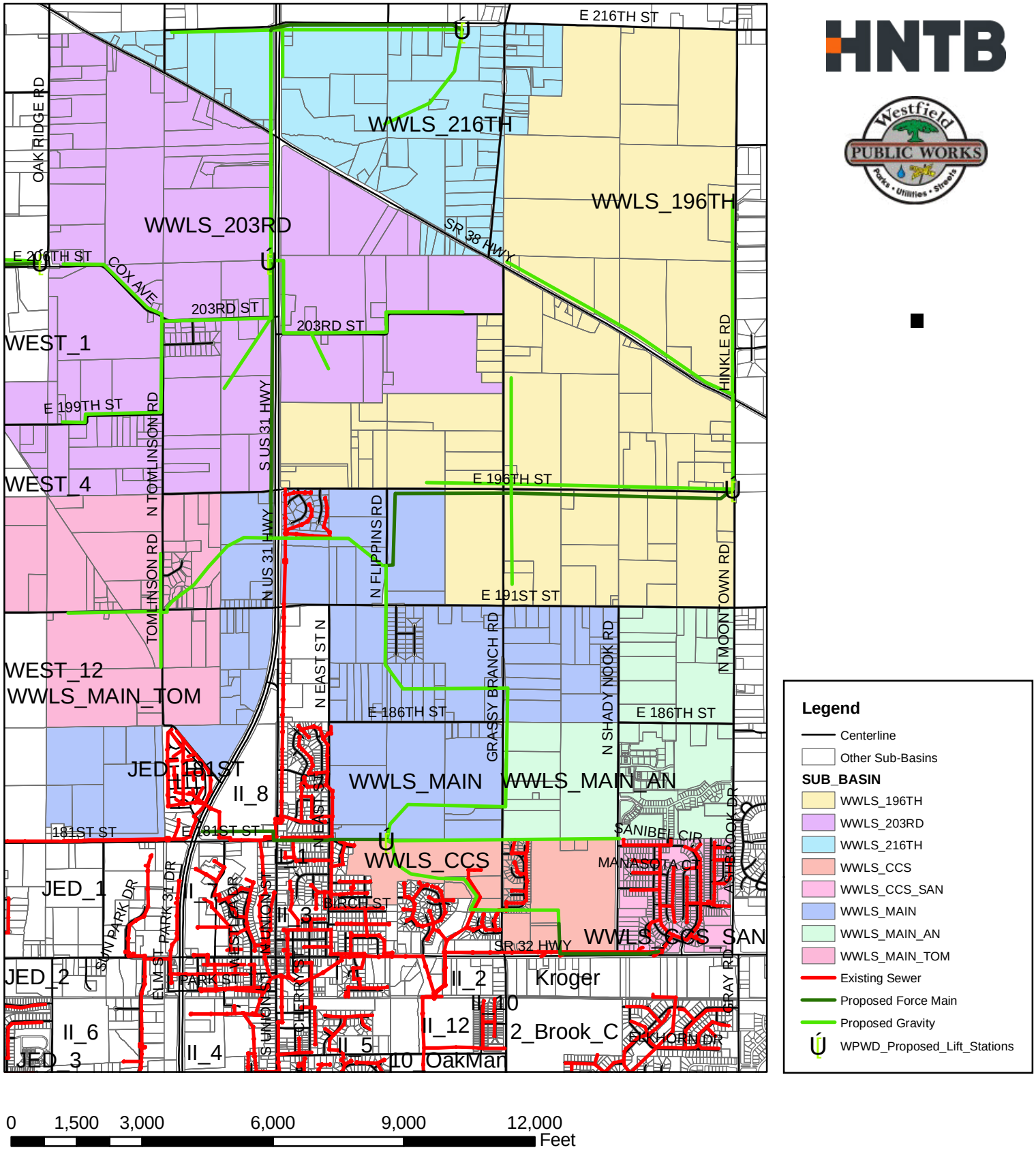


Figure 3-4
Washington Woods Propsed LIft Stations and Sewers
Westfield Wastewater Master Plan
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from its service area as well as the service area of the 196th Street LS (WWLS_196TH), since it is possible that the 196th Street LS will pump to the Andover LS before being conveyed to the main interceptor.

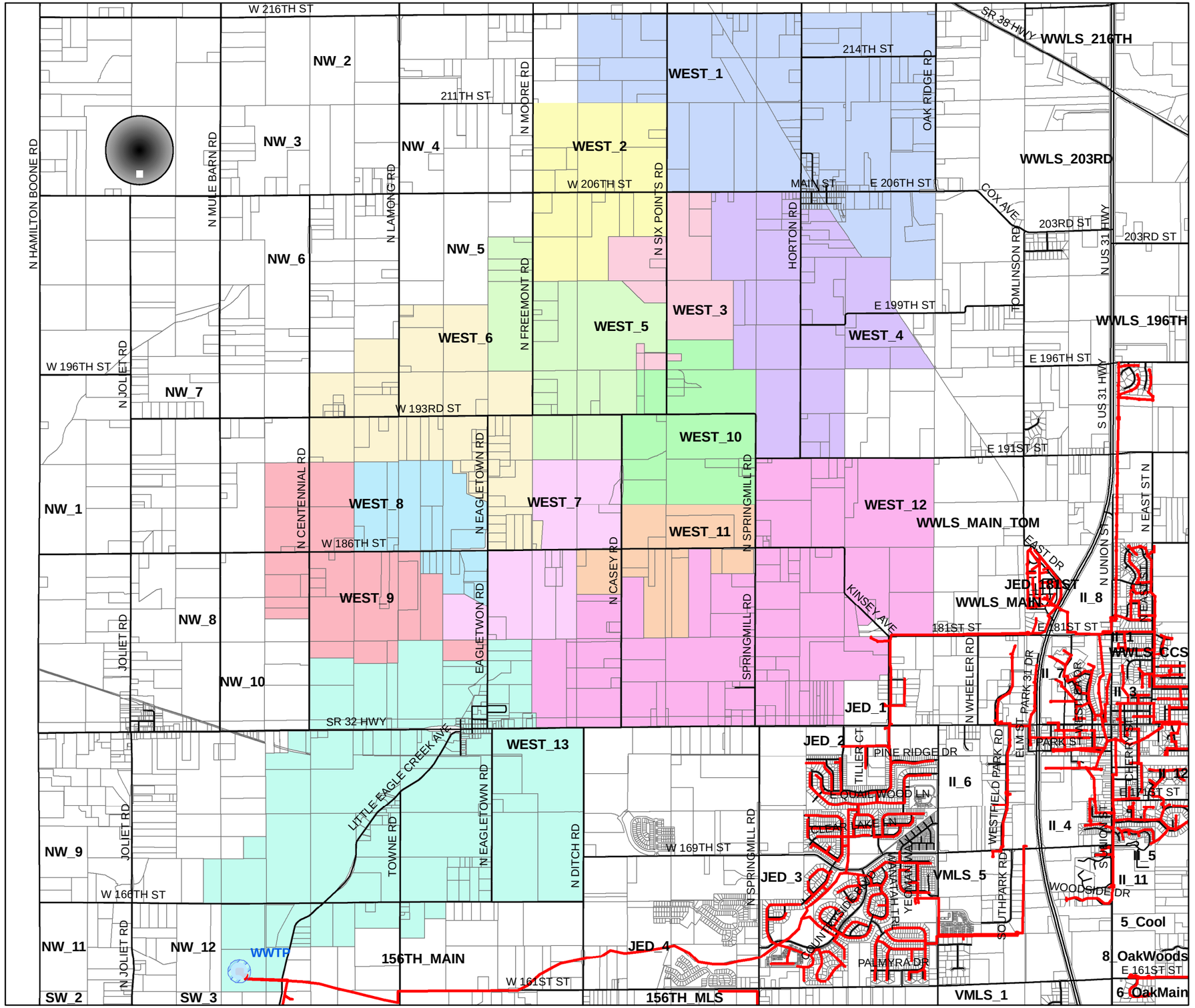
The Washington Woods main interceptor will begin as a 15-inch interceptor to receive flow from the current Tomlinson Road LS service area. The 15-inch interceptor will continue generally eastward toward U.S. 31. At U.S. 31, it will receive flow from the 203rd Street LS. The 203rd Street LS receives flow from its tributary sewers as well as from the 216th Street LS. Therefore, at U.S. 31, the interceptor will increase in size from 15-inch to 30-inch diameter to accommodate the flow from the WWLS_216TH, WWLS_203RD sub-basins in addition to the flow from the WWLS_MAIN_TOM sub-basin and a third of the WWLS_MAIN sub-basin that it is already receiving. The 30-inch interceptor will continue eastward until it intersects with the 196th Street LS force main. It is possible that the 196th Street LS force main will be routed to the Andover LS, but in order to take a conservative approach, the main interceptor sizing considers the 196th Street LS force main discharging directly into the interceptor at the point shown on Figure 3-4. Once the 196th Street LS force main discharges into the interceptor, it will continue south, following Cool Creek, as a 36-inch diameter sewer. It must be noted that the sewer will have to be laid at a slope greater than minimum, which shouldn't be a problem considering that it is following the creek. The 36-inch interceptor will also receive flow from the Andover LS force main as well as the remainder of the WWLS_MAIN sub-basin before it discharges into the Washington Woods LS.

Table 3-8 shows the sizing determination for the main interceptors to the Washington Woods LS as well as the lift station itself. The sizing is determined based upon the ultimate development of the service area with gravity sewers at minimum slope. Any undeveloped residential or commercial area in this basin is assumed to develop at 3.0 gross EDUs per acre. The table begins at the most upstream point of the main interceptor and adds lift stations as they would be added into the interceptor up to the Washington Woods Lift Station. The WWLS_MAIN sub-basin drains to various portions of the interceptor, so it is split into three sections for Table 3-8.

3.5 WESTSIDE INTERCEPTOR BASIN

The Westside Interceptor will be the main interceptor to drain the north and northeast portions of the township. The Washington Woods LS, discussed above, will pump into the Westside Interceptor. The Westside Interceptor service area is shown in Figure 3-5. This figure does not include the Washington Woods LS service area, since it was shown previously in Figure 3-3.

The Westside Interceptor will begin as a 42-inch sewer at minimum slope to receive flow from the Washington Woods LS. The interceptor will remain a 42-inch sewer until it intersects with the other main branch of the interceptor near Little Eagle Creek, also receiving flow from the WEST_12 sub-basin. From that point, the interceptor will be a 54-inch sewer at minimum slope and will generally follow Little Eagle Creek, as shown in Figure 3-6.



HNTB

Westfield PUBLIC WORKS Parks • Utilities • Streets

Legend

- Centerline
- Other Sub-Basins

SUB_BASIN

- WEST_1
- WEST_2
- WEST_3
- WEST_4
- WEST_5
- WEST_6
- WEST_7
- WEST_8
- WEST_9
- WEST_10
- WEST_11
- WEST_12
- WEST_13
- Existing Sewer
- WWTP

Figure 3-5
Westside Interceptor Service Area
Westfield Wastewater Master Plan
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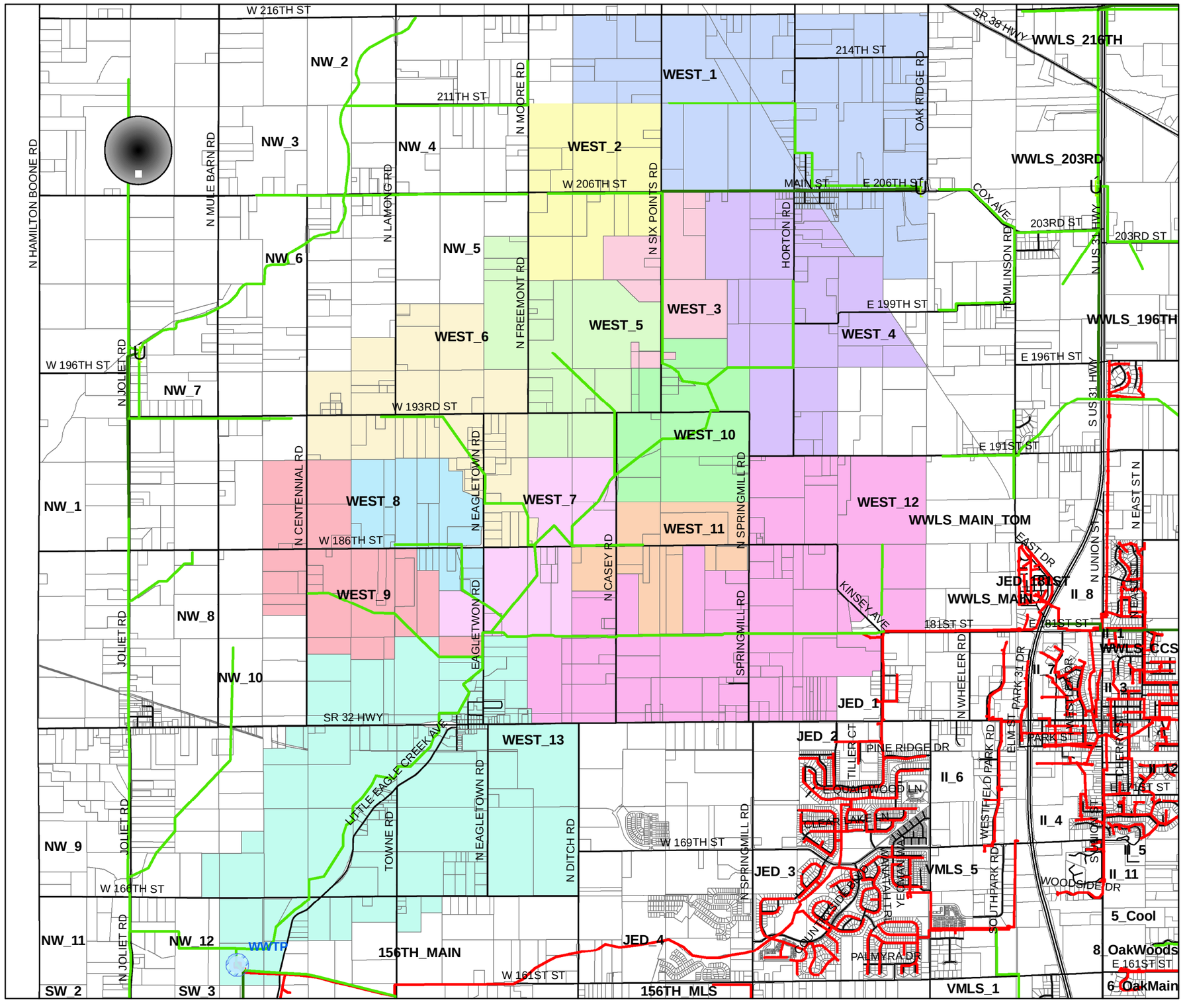


0 1,600 3,200 6,400 9,600 12,800 Feet

Legend

- Centerline
- Other Sub-Basins

SUB_BASIN

- WEST_1
- WEST_2
- WEST_3
- WEST_4
- WEST_5
- WEST_6
- WEST_7
- WEST_8
- WEST_9
- WEST_10
- WEST_11
- WEST_12
- WEST_13
- Existing Sewer
- Proposed Force Main
- Proposed Sewer
- WWTP
- WPWD_Proposed_Lift_Stations

Figure 3-6
Westside Interceptor Proposed Sewers
Westfield Wastewater Master Plan
September 2006

TABLE 3-8
WASHINGTON WOODS ULTIMATE SEWER/LIFT STATION SIZING

Item	Sub-Basin/Area	Acres	EDUs	Avg. Flow (MGD)	Peak Flow (MGD)	Sewer/LS Size
1	WWLS_MAIN_TOM	627	1,247	0.39	1.29	15”
2	WWLS_216TH	656	1,275	0.40	1.32	940 gpm
3	WWLS_203RD	1,643	4,010	1.24	4.49	3,125 gpm
4	1+2+3+ 1/3 WWLS_MAIN	3,460	7,567	2.35	6.06	30”
5	WWLS_196TH	1,852	4,638	1.44	4.02	3,125 gpm
6	4+5+ 1/3 WWLS_MAIN	5,847	13,241	4.11	9.63	36”**
7	WWLS_MAIN_AN*	462	770	0.24	0.84	1.0*
8	6+7+ 1/3 WWLS_MAIN	6,843	15,046	4.67	10.7	36”**
9	WWLS_CCS_SAN	133	412	0.13	0.48	410 gpm
10	WWLS_CCS + WWLS_CCS_SAN	385	571	0.18	0.65	12”
11	8+10	7,228	15,617	4.84	11.0	7,640 gpm

* Andover Lift Station is sized to be able to handle flow from WWLS_196TH. If WWLS_196TH is routed via the Andover LS, then the ultimate size of the Andover LS will be 3,180 gpm.

** The capacity of a 36” sewer at minimum slope is 9.26 MGD. Therefore, the sewer will need to be laid at a slope greater than minimum (0.05%/0.062% instead of 0.046%) in order to achieve the needed capacity.

The other main branch of the Westside Interceptor will begin as a 24-inch sewer near the intersection of 206th Street and Six Points Road. This portion of the interceptor will drain the 206th Street LS (WEST_1) as well as the sub-basin located near 206th Street west of Six Points Road (WEST_2). The branch will continue as a 24-inch sewer south along Six Points Road, receiving flow from WEST_3. Once the 15-inch sewer from WEST_4 intersects with the main branch, the interceptor branch will become a 30-inch sewer that follows Little Eagle Creek. The interceptor branch will remain a 30-inch sewer following the intersection with the 15-inch sewer from WEST_5 and while also receiving flow from WEST_10 and portions of WEST_7. Once the 10-inch sewer from WEST_11 intersects with the main interceptor, it will increase in size from 30-inch to 36-inch. The 36-inch interceptor will continue to follow Little Eagle Creek and receive flow from WEST_8 and the remaining portion of WEST_7. Once the 36-inch interceptor intersects with the 42-inch interceptor, the Westside Interceptor will become a 48-inch interceptor for a short while until receiving flow from the 15-inch sewer from WEST_9, where the Westside Interceptor will become a 54-inch sewer that follows Little Eagle Creek downstream to the Westside Wastewater Treatment Plant (WWTP). Table 3-9 shows the flow analysis and sizing for all of the branches of the Westside Interceptor.

TABLE 3-9
WESTSIDE INTERCEPTOR ULTIMATE SEWER/LIFT STATION SIZING

Item	Sub-Basin/Area	Acres	EDUs	Avg. Flow (MGD)	Peak Flow (MGD)	Sewer/LS Size
1	WEST_1	1,264	2,897	0.90	2.70	1,875 gpm
2	WEST_2	439	1,103	0.34	1.16	15"
3	1+2	1,703	4,000	1.24	3.54	24"
4	3+WEST_3	1,942	4,596	1.42	3.99	24"
5	WEST_4	706	1,697	0.53	1.70	15"
6	4+5	2,648	6,293	1.95	5.20	30"
7	6+WEST_10	3,030	7,221	2.24	5.83	30"
8	WEST_5	504	1,249	0.39	1.30	15"
9	7+8	3,534	8,470	2.63	6.65	30"*
10	WEST_11	269	558	0.17	0.63	10"
11	9+10+1/2 WEST_7	3,978	9,424	2.92	7.27	36"
12	WEST_6	647	1,447	0.45	1.48	15"
13	11+12	4,625	10,871	3.37	8.18	36"
14	13+1/2 WEST_7	4,800	11,267	3.49	8.43	36"
15	WEST_8	270	659	0.21	0.73	10"
16	14+15	5,070	11,926	3.70	8.83	36"
17	WWLS+WEST_12	8,606	19,034	5.90	13.0	42"*
18	16+17	13,676	30,960	9.60	19.3	48"
19	WEST_9	501	1,240	0.39	1.29	15"
20	18+19	14,177	32,200	9.98	20.0	54"
21	20+WEST_13	15,872	36,204	11.2	22.0	54"

* The capacities of a 30" and 42" sewer at minimum slope are 6.40 MGD and 12.5 MGD, respectively. Therefore, these sewers will have to be laid at a slope greater than minimum (0.067% instead of 0.058% for 30" and 0.04% instead of 0.037% for 42") to achieve the needed capacity.

This flow analysis begins at the upstream end of the Westside Interceptor basin and follows each branch downstream to the WWTP. The sizing discussed above and shown in the table was determined based upon the ultimate EDUs and gravity sewers at minimum slope, unless otherwise noted in the table. Any undeveloped residential or commercial land was assumed to develop at 3.0 gross EDUs per acre. As mentioned above, the 42-inch interceptor receives flow not only from WEST_12 sub-basin but also from the Washington Woods Lift Station, which is discussed in the previous section.

3.6 VIKING MEADOWS LIFT STATION BASIN

The Viking Meadows Lift Station is a regional lift station that will pump to the 156th Street Interceptor. Figure 3-7 shows the basin service area. The initial lift station is currently under construction. Much like the Washington Woods LS, the Viking Meadows LS will have dual wet-wells and force mains to accommodate both the smaller, initial lift station and the larger, ultimate lift station. The initial lift station has a capacity of 750 gpm, which can handle up to 1,018 EDUs.

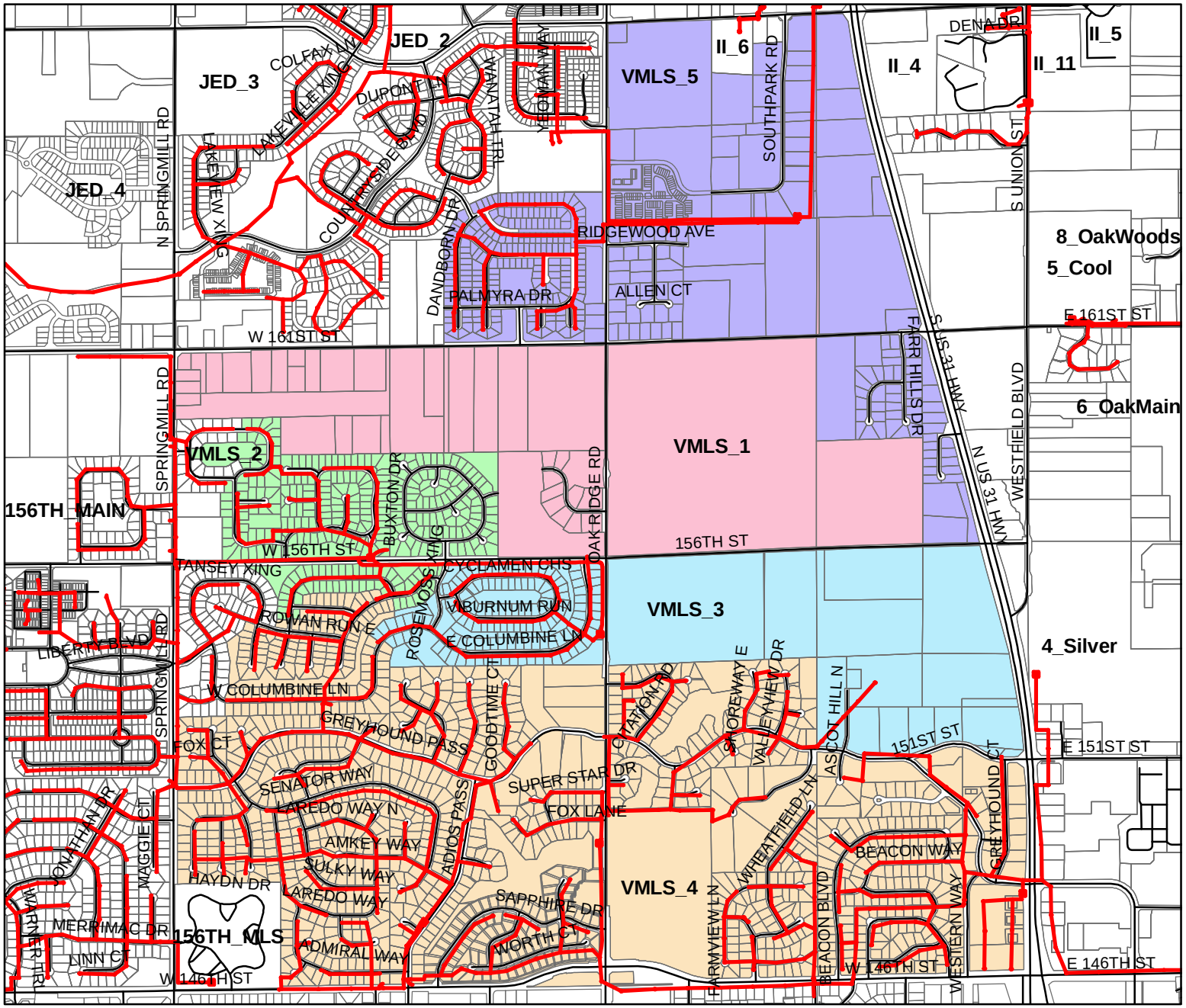


Figure 3-7
Viking Meadows Lift Station Service Area
Westfield Wastewater Master Plan
September 2006

The Viking Meadows subdivision is allocated to have 252 EDUs, so the initial lift station can handle flow not only from the subdivision but from other areas.

The Viking Meadows Lift Station (VMLS) basin is unique in that much of the basin is already developed (see Figure 3-7). Three of the five VMLS sub-basins currently drain to lift stations that pump to other basins. The VMLS_2 sub-basin flows to the Springdale Farms LS, which currently pumps to the 15-inch sewer that flows to the Merrimac LS. The existing portion of VMLS_3 flows to the Springmill Villages LS, which currently pumps to a sewer that discharges into the Springdale Farms LS. The developed portion of the VMLS_5 sub-basin flows to the Southpark LS, which currently pumps to the 18-inch J. Edwards Drain Interceptor. The VMLS_1 sub-basin is a largely undeveloped area that is not currently sewered. The VMLS_4 sub-basin currently drains to the 15-inch interceptor that flows to the City of Carmel wastewater collection system.

Figure 3-8 shows the existing and proposed sewers. As can be seen from the figure, gravity sewers are planned to take the place of the three lift stations discussed above. The VMLS_1 sub-basin will drain by gravity to the 15-inch sewer that is located in the Viking Meadows subdivision. The Springdale Farms LS, from the VMLS_2 sub-basin, will be abandoned, and this area will drain to a new gravity sewer to be located along 156th Street to the 15-inch interceptor that is located in the Viking Meadows subdivision. The Springmill Villages LS, from the VMLS_3 sub-basin, will be abandoned, and this area will drain to a new 8-inch sewer that will cross Oak Ridge Road into the Viking Meadows subdivision to eventually drain to the 15-inch interceptor.

The existing 15-inch interceptor that drains VMLS_4 will be intercepted near U.S. 31 and routed north to the Viking Meadows LS along U.S. 31. It must be noted that U.S. 31 may be widened, so the routing of this sewer to the north must be coordinated with the widening of U.S. 31. This sewer will be upsized to an 18-inch interceptor to handle the flow from the Setters Run LS, whose force main will be re-routed from the Cool Creek Interceptor to the new interceptor. The Southpark LS, from the VMLS_5 sub-basin, will be abandoned, and this area will drain to a new 12-inch sewer that will generally follow U.S. 31 to the south. Again, the routing of this sewer must be coordinated with the widening of U.S. 31. The 12-inch sewer from the north will intersect with the 18-inch sewer from the south, and the interceptor will then become a 21-inch sewer that connects to the Viking Meadows LS, located to the west.

The flow analysis and sewer and lift station sizing is shown in Table 3-10. The sizing is based on the ultimate condition, with the gravity sewer sizing based on sewers at minimum slope, unless otherwise noted in the table. Any undeveloped residential or commercial land was assumed to develop at 3.0 gross EDUs per acre. As can be seen from the table, the ultimate capacity of the Viking Meadows LS should be 3,125 gpm, which equates to 4.5 MGD.

As mentioned above, the ultimate lift station will be a dual wet well lift station. Therefore, a manhole is located upstream of both wet wells to receive flow from the 15-inch and 21-inch sewers and divert flow to both of the wet wells via two 18-inch sewers with gates at the manhole. With this arrangement, the flow will be able to be split between the two wet wells or diverted wholly to one wet well.

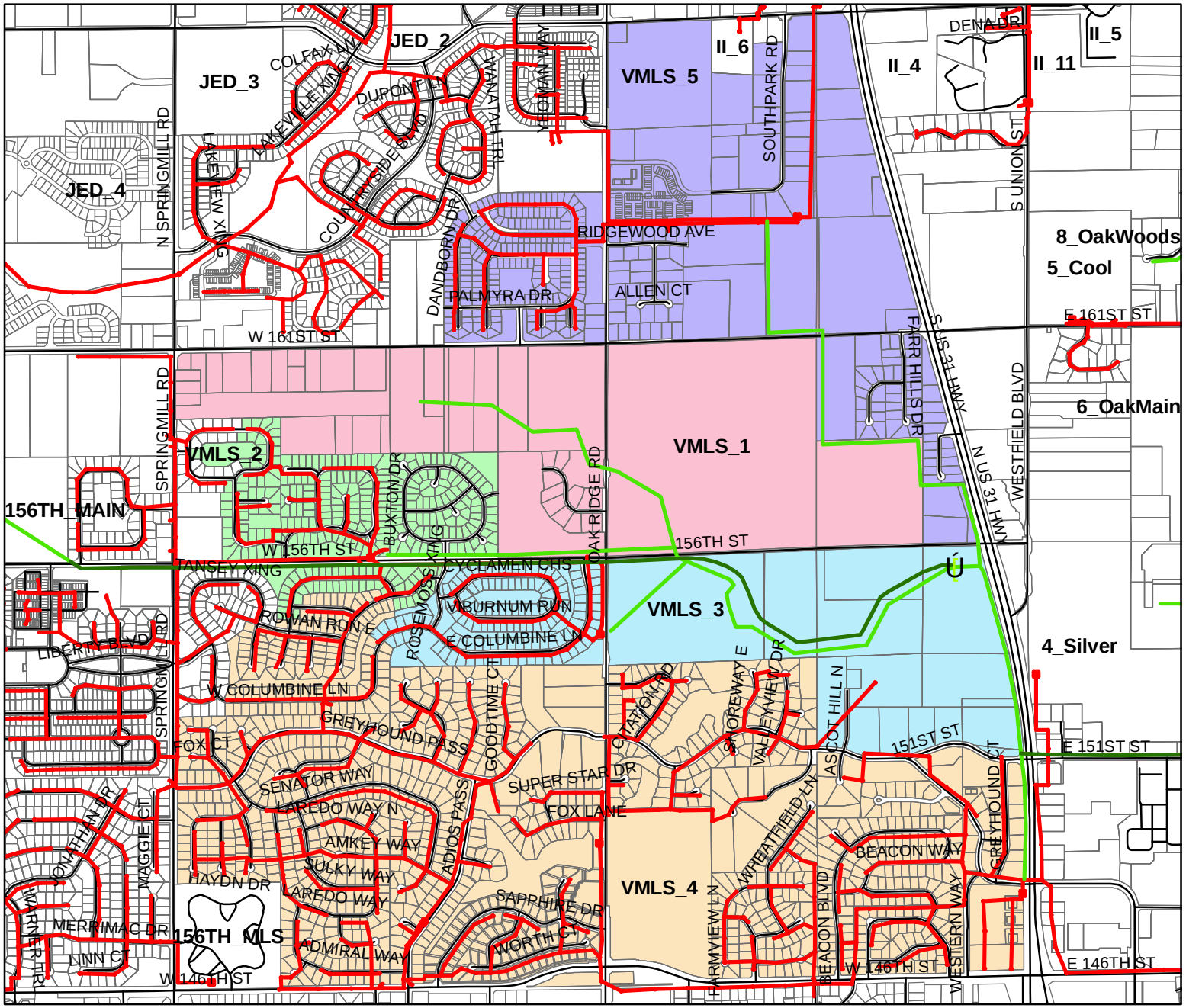


Figure 3-8
Viking Meadows Proposed Sewers and Lift Station
Westfield Wastewater Master Plan
September 2006

TABLE 3-10
VIKING MEADOWS ULTIMATE SEWER/LIFT STATION SIZING

Item	Sub-Basin/Area	Acres	EDUs	Avg. Flow (MGD)	Peak Flow (MGD)	Sewer/LS Size
1	VMLS_1	368	604	0.19	0.68	10"
2	VMLS_2	104	292	0.09	0.35	10"
3	1+2+VMLS_3	744	1,426	0.44	1.46	15"
4	VMLS_4	719	1,483	0.46	1.51	15"
5	1_Gray	502	1,283	0.40	1.33	1,125 gpm
6	4+5	1,221	2,766	0.86	3.13	21"
7	VMLS_5	415	912	0.28	0.98	12"
8	6+7	1,636	3,678	1.14	3.90	21"*
9	3+8 (Viking Meadows LS)	2,380	5,104	1.58	5.03	3,540 gpm

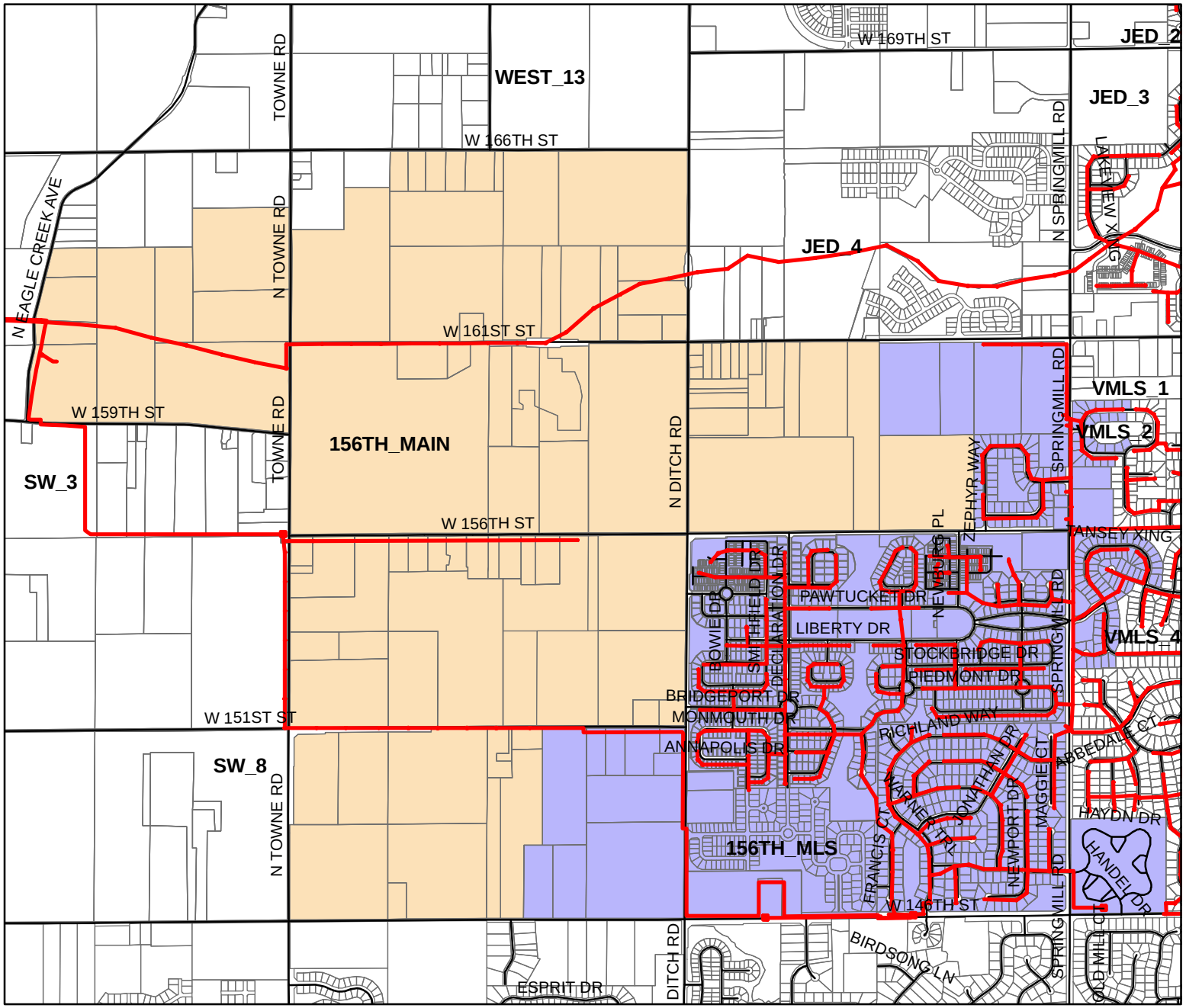
* The capacity of a 21" sewer at minimum slope is 3.24 MGD. Therefore, this sewer will have to be laid at a slope greater than minimum (0.15% instead of 0.10%) to achieve the needed capacity.

3.7 156TH STREET INTERCEPTOR BASIN

The 156th Street Interceptor will serve the portion of the township that is bounded by 161st Street to the north, U.S. 31 to the east, 146th Street to the South, and Towne Road to the west (see Figure 3-9). The 156th Street Interceptor basin receives flow from the Viking Meadows basin, discussed above, as well as two sub-basins: 156TH_MAIN, and 156TH_MLS. The 156TH_MAIN sub-basin drains to the main 156th Street Interceptor. The 156TH_MLS sub-basin drains to the Merrimac Lift Station, which currently pumps to a gravity sewer that drains to the Towne Road LS.

The Merrimac LS has a peak capacity of 1,250 gpm, which equates to 1.80 MGD. Currently, the estimated peak flow to the Merrimac LS is approximately 1.77 MGD, so it is at capacity. The estimated ultimate peak flow to the LS is approximately 2.07 MGD, so the lift station will likely exceed its peak capacity in the future. It is possible that the estimated ultimate flow will not be realized, since the peak flow assumption is fairly conservative. However, to make sure that the peak flow of the lift station is not exceeded, flow monitoring should be performed to determine if the peak flow estimates are correct. If the peak flow entering the lift station is at or near its capacity, the lift station will have to either be upgraded or have some flow re-routed from the lift station to the main interceptor.

Figure 3-10 shows the existing and proposed sewers and lift stations. The 156th Street interceptor will begin as a 30-inch sewer that will receive flow from the Viking Meadows force main(s). The 30-inch sewer will proceed through the currently planned Centennial North subdivision. At the intersection of 156th Street and Ditch Road, the 30-inch sewer will become a 36-inch sewer. This 36-inch sewer will be routed in between 156th and 151st Streets to Towne Road so that it will accommodate another branch of the Centennial subdivision. At Towne Road, the 36-inch interceptor will intercept flow from the Towne Road LS, thereby allowing this lift station to be abandoned. At this point, the 36-inch interceptor will also receive flow from the Merrimac LS



0 1,000 2,000 4,000 6,000 8,000 Feet

Legend

- Centerline
- Other Sub-Basins

SUB_BASIN

- 156TH_MAIN
- 156TH_MLS
- Existing Sewer

Figure 3-9
156th Street Interceptor Service Area
Westfield Wastewater Master Plan
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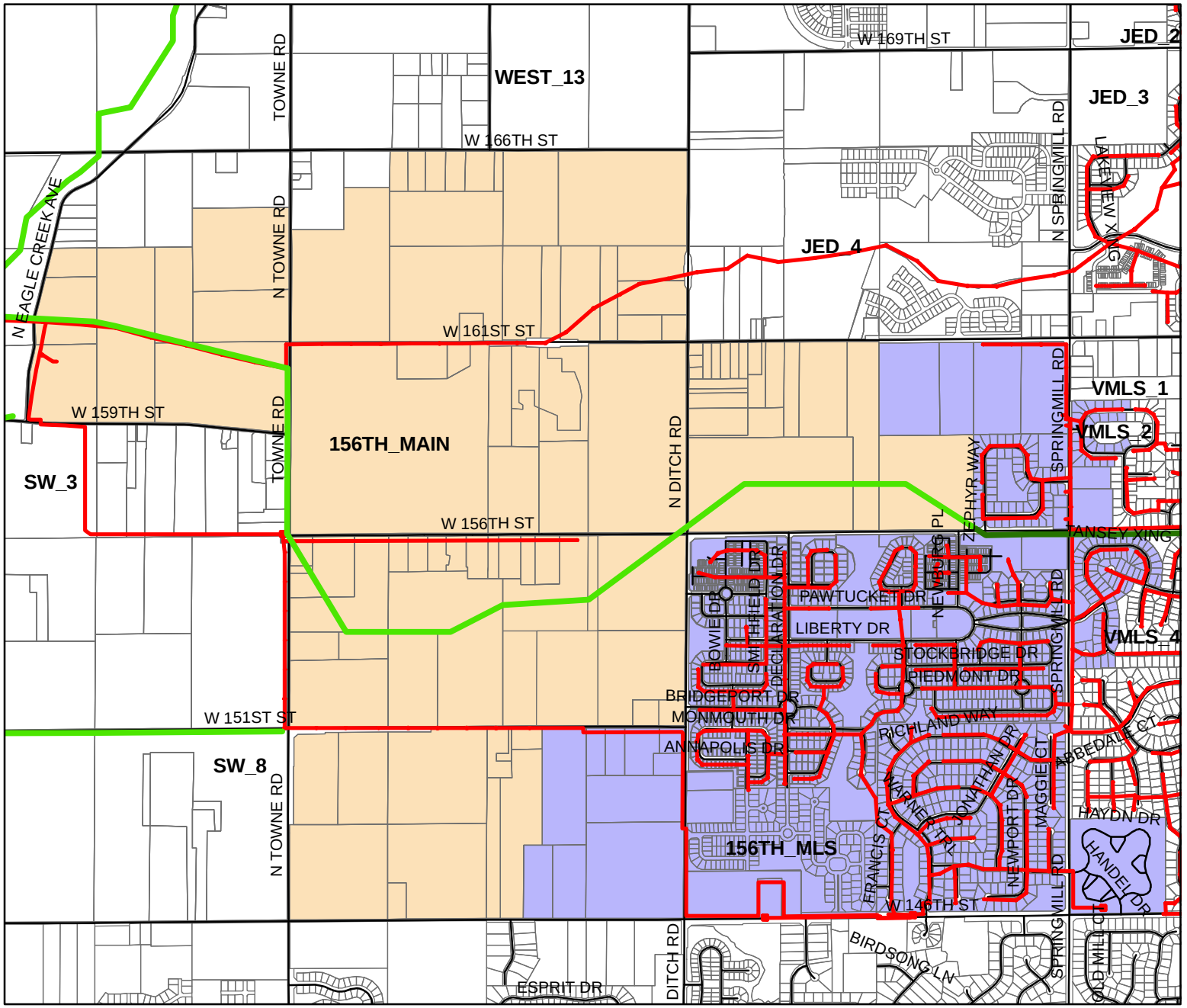

Legend

- Centerline
- Other Sub-Basins

SUB_BASIN

- 156TH_MAIN
- 156TH_MLS
- Existing Sewer
- Proposed Force Main
- Proposed Force Main
- WPWD_Proposed_Lift_Stations

0 1,000 2,000 4,000 6,000 8,000 Feet

Figure 3-10
156th Street Proposed Sewers
Westfield Wastewater Master Plan
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area via the existing 27-inch gravity sewer. The interceptor will then proceed north to the J. Edwards Drain and parallel the J. Edwards Drain Interceptor to the WWTP.

Table 3-11 shows the ultimate flow analysis and sewer/lift station sizing for the 156th Street Interceptor basin. The Merrimac LS and Viking Meadows LS have been discussed above, so their sizing is only shown in the table. The sewer sizing is based upon gravity sewers at minimum slope, unless otherwise noted in the table. It was assumed that any undeveloped residential or commercial area would develop at 3.0 gross EDUs per acre. As can be seen from the table, the 36-inch interceptor is large enough to handle flow from both the 156th Street Interceptor basin and the Viking Meadows LS basin.

TABLE 3-11
156TH STREET INTERCEPTOR ULTIMATE SEWER/LIFT STATION SIZING

Item	Sub-Basin/Area	Acres	EDUs	Avg. Flow (MGD)	Peak Flow (MGD)	Sewer/LS Size
1	VMLS Basin	2,380	5,104	1.58	4.36	3,540 gpm
2	1+ 1/4 156TH_MAIN	2,944	6,332	1.96	6.38	30”
3	2+ 3/8 156TH_MAIN	3,790	8,175	2.53	7.93	36”
4	156TH_MLS	861	2,134	0.66	2.07	1,250 gpm*
5	3+4	4,651	10,309	3.20	9.73	36”**
6	5+ 3/8 156TH_MAIN	5,497	12,151	3.77	11.1	36”**

* The current capacity of the Merrimac LS is 1,250 gpm, or 1.80 MGD. Since the estimated ultimate peak flow is greater than the current capacity, the peak flow into the lift station should be monitored. If the peak flow exceeds the peak capacity, then the lift station should be upgraded or have some flow removed.

** The capacity of a 36” sewer at minimum slope is 9.26 MGD. Therefore, this sewer will have to be laid at a capacity greater than minimum slope (0.067% instead of 0.046%) after receiving flow from the Merrimac LS.

3.8 NORTHWEST INTERCEPTOR BASIN

The Northwest Interceptor basin is the area that is the largely undeveloped northwest portion of Washington Township. The basin is shown in Figure 3-11. As can be seen by the figure, the Northwest Interceptor is bounded by the Hamilton County-Boone County line on the west and 216th Street to the north, with the east and south boundaries changing with parcel lines and drainage breaks.

Since the basin is largely undeveloped, the land use needed to be assigned. This area is further from the Town of Westfield and more rural in nature than any of the other basins. Therefore, the land use was assigned such that south of 186th Street, any undeveloped residential area was assumed to develop at 2.5 gross EDUs per acre. For the area north of 186th Street, it was assumed that any undeveloped residential area would develop at 1.5 gross EDUs per acre, thereby preserving the rural nature of this basin. Undeveloped commercial areas were assumed to develop at 3.0 gross EDUs per acre.

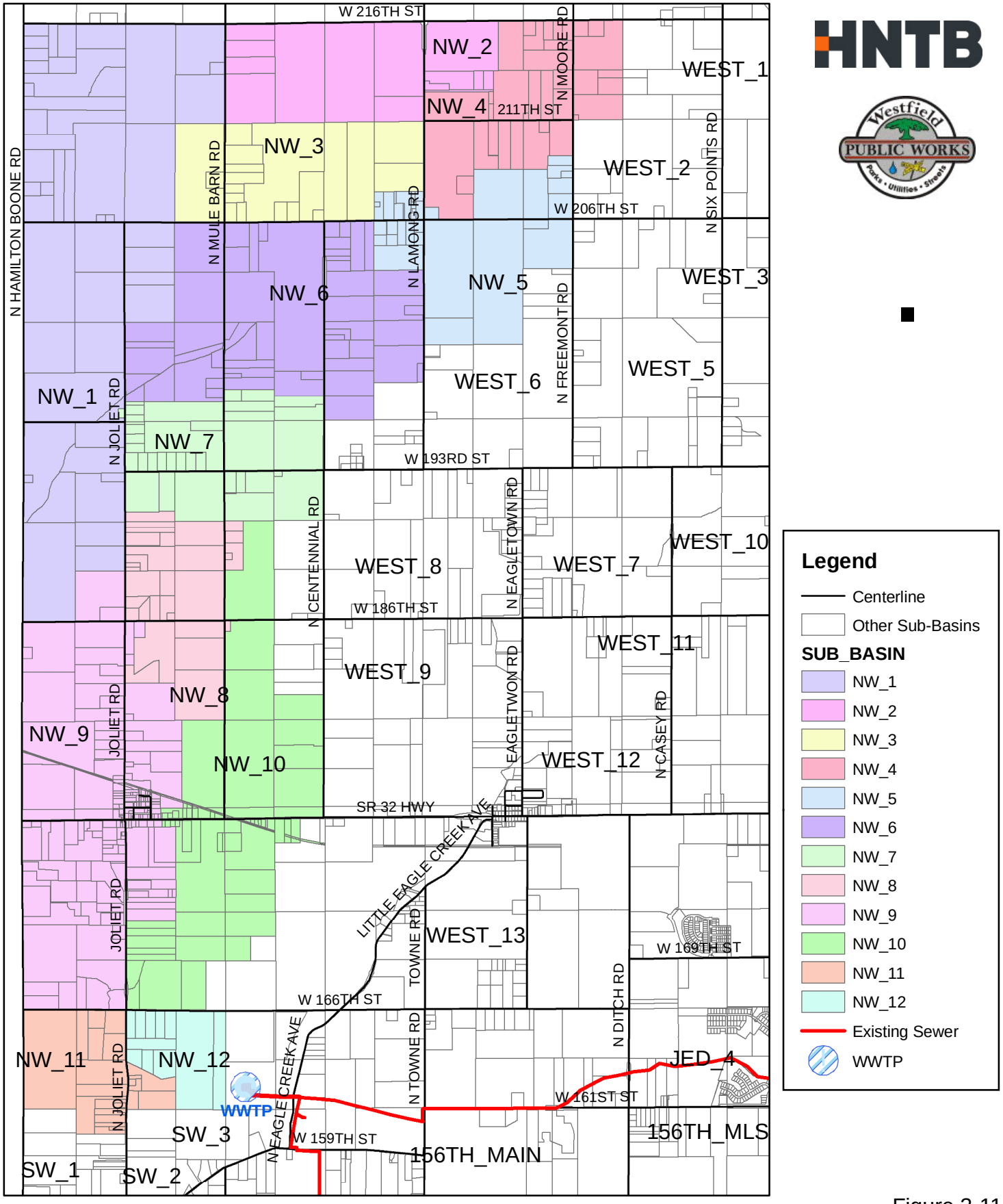

Figure 3-11
Northwest Service Area
Westfield Wastewater Master Plan
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The interceptor sewers will drain mostly by gravity from north to south, mainly draining toward Little Eagle Creek. There is a drainage break in this basin, so the northern portion will drain to a lift station that will pump south to the main interceptor. From the discharge point of the lift station, the remainder of the basin will drain by gravity to the WWTP. The Northwest basin is broken up into many sub-basins, which delineate any branches of the main interceptor as well as size changes in the interceptor. The proposed interceptors and lift station are shown in Figure 3-12.

Table 3-12 shows the flow analysis and ultimate sewer/lift station sizing for the Northwest Interceptor. The gravity sewers were sized based on the assumption of minimum slope, unless otherwise noted in the table. The EDU assumption was discussed above. From the table, it can be seen that the lift station's ultimate capacity will be 2,915 gpm, which equates to 4.2 MGD.

The most upstream branch of the interceptor will be a 12-inch sewer that receives flow from the 8-inch sewer and 10-inch sewer from NW_4 and NW-2, respectively. The interceptor will remain a 12-inch sewer until the intersection with the 10-inch sewer from NW_3, where the interceptor will become a 15-inch sewer. After receiving flow from the NW_5 sub-basin, the interceptor will become an 18-inch sewer and remain as such while receiving flow from approximately one-half of the NW_6 sub-basin. Approximately halfway through the NW_6 sub-basin, the interceptor will become a 21-inch sewer that will drain to the lift station. The NW_1 sub-basin will begin as a 12-inch interceptor and become a 15-inch interceptor approximately halfway through the basin as it drains south to the lift station. The NW_7 sub-basin will drain to a 10-inch sewer that will drain north to the lift station. The lift station will pump to a 24-inch sewer that will continue south.

The interceptor will continue south as a 24-inch sewer until it intersects with the 10-inch sewer from NW_8, where it will increase in size to 27-inch. The 27-inch interceptor will proceed through the NW_9 sub-basin. Approximately halfway through the NW_9 sub-basin, the interceptor will increase in size to a 30-inch sewer. After receiving flow from the 15-inch sewer from the NW_10 sub-basin, the interceptor will continue as a 30-inch sewer, although the slope will have to be slightly more than minimum slope. After intersecting with the 8-inch sewer from the NW_11 sub-basin from the south, the interceptor will increase in size to 36-inch. The interceptor will continue to the WWTP as a 36-inch sewer, while receiving flow from the NW_12 sub-basin. At the north end of the WWTP property, the 36-inch interceptor will intersect with the 54-inch Westside Interceptor, where a 60-inch sewer will convey all of the flow to the WWTP headworks.

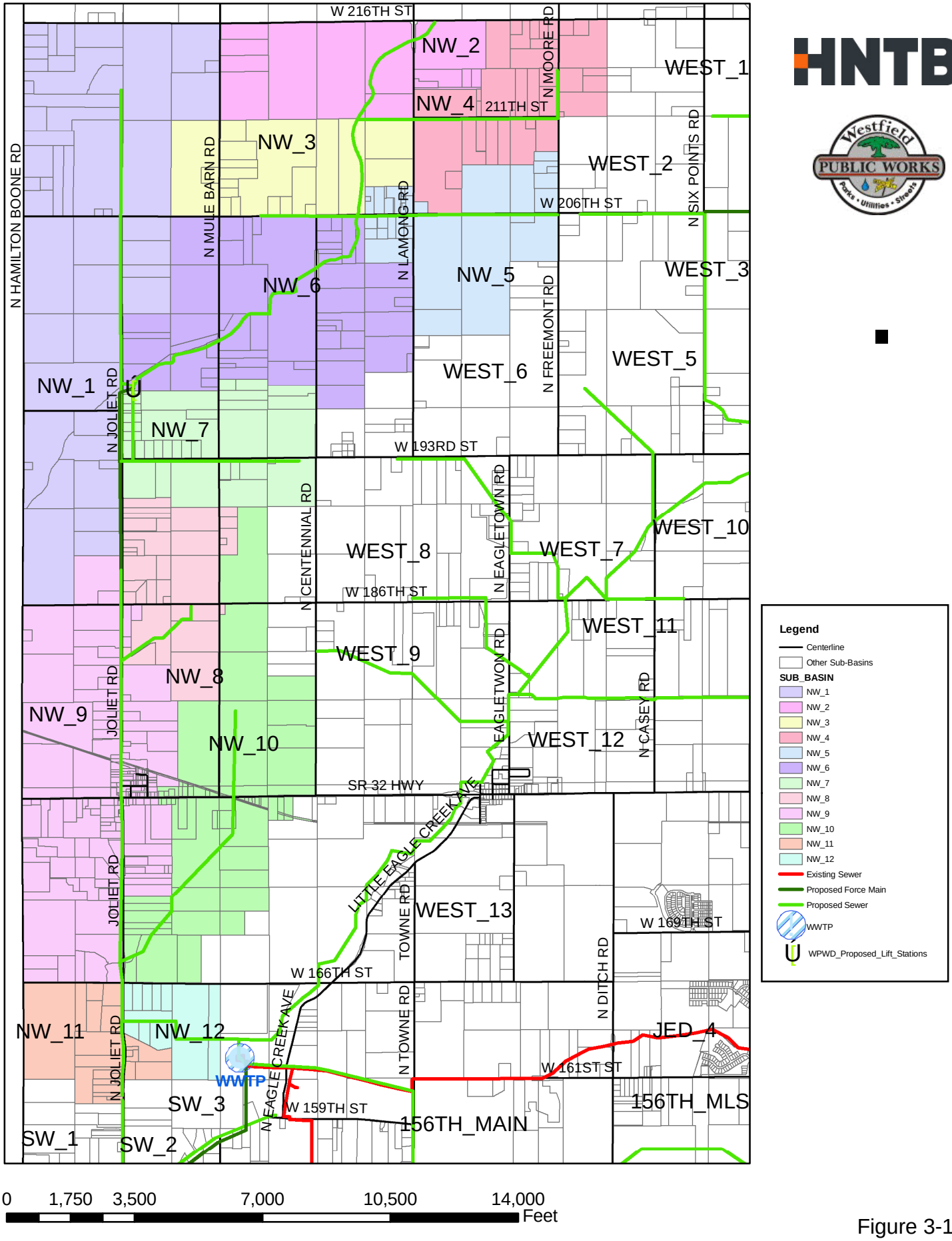

Figure 3-12
Northwest Proposed Lift Station and Sewers
Westfield Wastewater Master Plan
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TABLE 3-12
NORTHWEST INTERCEPTOR ULTIMATE SEWER/LIFT STATION SIZING

Item	Sub-Basin/Area	Acres	EDUs	Avg. Flow (MGD)	Peak Flow (MGD)	Sewer/LS Size
1	NW_2	398	499	0.16	0.57	10”
2	NW_4	381	425	0.13	0.49	8”
3	1+2	779	924	0.29	0.99	12”
4	NW_3	375	462	0.14	0.53	10”
5	3+4	1,154	1,386	0.43	1.42	15”
6	NW_5	386	457	0.14	0.52	10”
7	5+6	1,540	1,843	0.57	1.82	18”
8	7+ 1/2 NW_6	1,903	2,287	0.71	2.20	18”
9	8+ 1/2 NW_6	2,266	2,731	0.85	2.56	21”
10	NW_1	1,250	1,620	0.50	1.63	12”/15”
11	NW_7	384	438	0.14	0.50	10”
12	9+10+11 (LS)	3,900	4,789	1.48	4.13	2,915 gpm
13	12 (Interceptor)	3,900	4,789	1.48	4.13	24”
14	NW_8	301	586	0.18	0.66	10”
15	13+14	4,201	5,375	1.67	4.55	27”
16	15+1/2 NW_9	4,642	6,160	1.91	5.10	27”
17	16+ 1/2 NW_9	5,083	6,945	2.15	5.64	30”
18	NW_10	713	1,445	0.45	1.48	12”/15”
19	17+18	5,796	8,390	2.60	6.60	30”*
20	NW_11	212	332	0.10	0.39	8”
21	19+20	6,008	8,722	2.70	6.82	36”*
22	21+NW_12	6,137	8,946	2.77	6.96	36”*
23	NW+WWLS+WEST	22,009	45,150	14.0	28.0	60”

* The capacity of a 30” sewer at minimum slope is 6.40 MGD. Therefore, the 30” sewer following the intersection with the 15” sewer from NW_10 will have to be laid at a slope greater than minimum (0.062% instead of 0.058%) to achieve the needed capacity. If the slope of the land will allow, the 36” sewer could become a 30” sewer at a slope of 0.07%.

3.9 SOUTHWEST INTERCEPTOR BASIN

The Southwest Interceptor basin will include the interceptor sewers that are necessary to convey flow from the southwestern portion of Washington Township. The Southwest Interceptor basin area is generally bounded by Towne Road on the east, the Hamilton County-Boone County line on the west, roughly 156th Street on the north and 146th Street on the south. The planning area for the Southwest Interceptor is shown in Figure 3-13.

In order to determine the sizes of the interceptors that are needed for the planning area, a land use must be assigned for the planning area. Currently, the land use of the southwestern portion of the township is low density residential, or 1.5 gross EDUs per acre. It is anticipated, however, that the land use of this area will change to be closer to other parts of the township. The land use would then be medium density residential, or 2.5 gross EDUs per acre. For the purposes of

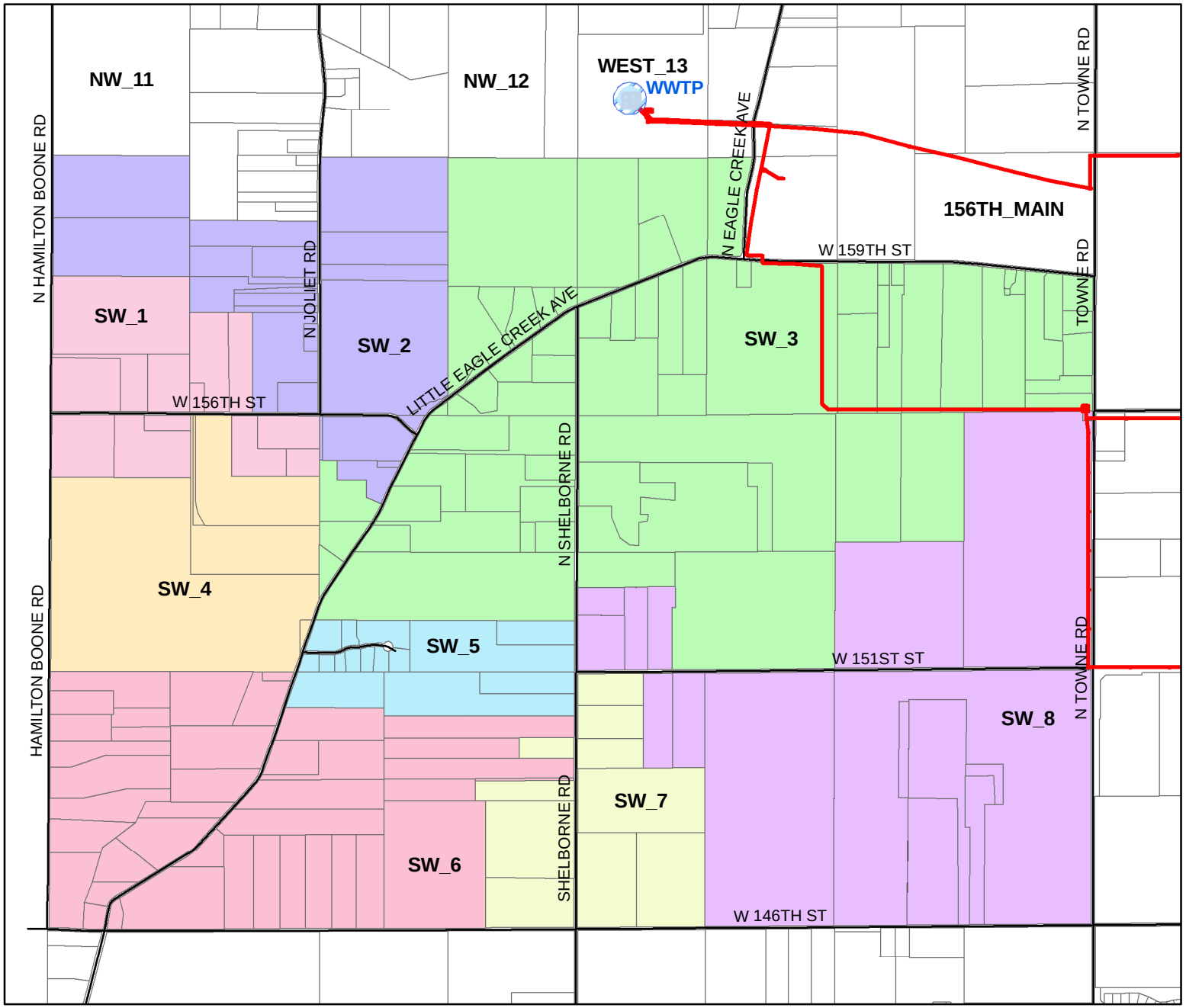

Figure 3-13
Southwest Service Area
Westfield Wastewater Master Plan
September 2006

interceptor sizing, a land use of medium density residential (2.5 gross EDUs per acre) was assumed.

This total flow will be conveyed to the wastewater treatment plant via several interceptors that will flow into a regional lift station. The proposed interceptors and lift station are shown in Figure 3-14. The lift station will be located near the northwest corner of the intersection of 151st Street and Little Eagle Creek Road. It is likely that the lift station will be a dual cylinder, submersible lift station. The dual cylinder arrangement will allow for a smaller lift station to be utilized for initial development, with the second cylinder put in operation when the development of the area warrants its use.

Table 3-13 shows the flow analysis and sewer/lift station sizing for the Southwest Interceptor basin. As can be seen from the table, the ultimate size of the lift station will be 2.2 MGD, since the lift station will convey flow from the entire basin. The sizing of the interceptors was based on the ultimate peak flow that would need to be conveyed by a gravity sewer at minimum slope.

TABLE 3-13
SOUTHWEST INTERCEPTOR ULTIMATE SEWER/LIFT STATION SIZING

Item	Sub-Basin/Area	Acres	EDUs	Avg. Flow (MGD)	Peak Flow (MGD)	Sewer/LS Size
1	SW_1	94	167	0.05	0.21	8”
2	SW-2	175	330	0.10	0.39	8”
3	1+2	269	497	0.15	0.57	10”
4	SW_3	593	974	0.30	1.03	12”
5	3+4	862	1,471	0.46	1.50	15”
6	SW_4	130	276	0.09	0.33	8”
7	SW_6	258	40	0.01	0.05	8”
8	SW_8	386	430	0.13	0.50	10”
9	SW_7	98	10	0.004	0.02	8”
10	8+9	484	440	0.14	0.51	10”
11	10 + SW_5	545	455	0.14	0.52	10”
12	5+6+7+11	1,795	2,242	0.70	2.16	1,530 gpm

As can be seen from the table, many of the sewers will be 8-inch or 10-inch sewers. The two 8-inch sewers from SW_1 and SW_2 will intersect to a 10-inch sewer. This 10-inch sewer will intersect with the 12-inch sewer from the SW_3 sub-basin. From this point, the interceptor will become a 15-inch sewer that will follow Little Eagle Creek south to the lift station. The SW_4 and SW_6 sub-basins will both have 8-inch sewers that will also drain to the lift station. The 8-inch and 10-inch sewers from the SW_7 and SW_8 sub-basins, respectively, will intersect to a 10-inch sewer. This 10-inch sewer will also convey the flow from the SW_5 sub-basin while draining to the lift station. The lift station will receive flow from the 15-inch, two 8-inch, and 10-inch sewers and pump the flow to the WWTP.

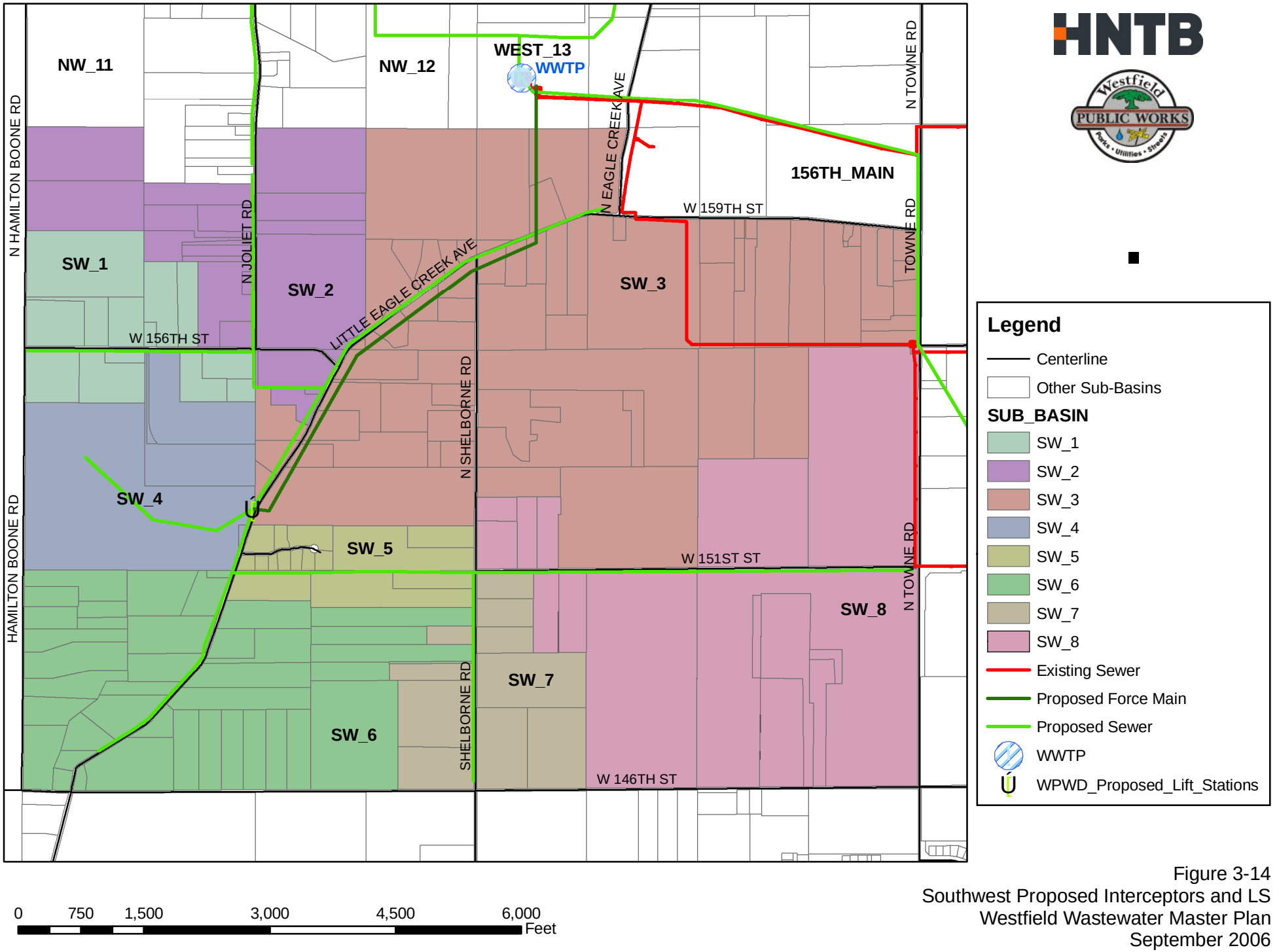

Figure 3-14
Southwest Proposed Interceptors and LS
Westfield Wastewater Master Plan
September 2006

CHAPTER 4
RECOMMENDATIONS AND CONCLUSIONS

4.1 INTRODUCTION

This chapter describes the recommendations for existing sewers with capacity issues as well as sizing conclusions for proposed sewers. In addition to discussing the capacity and sizing issues, the chapter also discusses how to update the GIS basins, sub-basins, and sub-sub-basins.

4.2 RECOMMENDATIONS FOR EXISTING SEWERS

As discussed in Chapter 3, most of the existing sewers and lift stations have sufficient capacity to handle the current and ultimate flows. There are a few existing sewers and lift stations that have capacity issues, though.

The Oak Road LS is the currently the largest lift station in the Town. The lift station has no dry weather flow problems, but it receives a large amount of infiltration and inflow from the older, downtown sewers. To assist with the wet weather problems, the Town is initiating several projects to line selected pipes with cured-in-place pipe to reduce the I/I as well as creating a new ordinance regarding abandonment of septic systems and their replacement with a sewer lateral. The Town is also utilizing the lagoons at the Public Works Department to hold wet weather flows until the Oak Road LS has the capacity to handle the flow. With this situation, the Oak Road LS has sufficient capacity to handle the current and ultimate flows.

The Brookside LS is currently designed to accept another pump. It is likely that this pump will have to be added soon, since the lift station service area is beginning to develop quickly. The Brookside LS is sized to have an ultimate capacity of 1.40 MGD. In order to meet this ultimate capacity, the future developments were assumed to develop at 0.5 EDUs per acre. If the future developments are to develop at more than 0.5 EDUs per acre, then a facility plan must be performed to determine how the lift station can be upsized or flow can be removed from the lift station. Flow monitoring to determine the actual peak flow entering the lift station should be a part of the facility planning.

The 18-inch Cool Creek Interceptor does not have any current or ultimate capacity issues. However, the 21-inch Cool Creek Interceptor may begin to have ultimate capacity issues. The Oak Road force main may be upsized and extended to the 21-inch interceptor to allow more of the downtown flow through the Oak Road LS. With this possibility, as well as the predicted ultimate capacity issues, flow monitoring of the 21-inch interceptor should be completed to confirm the existing peak flow to the interceptor. The flow monitoring will determine whether or not facility planning needs to be completed to do a more in-depth analysis of the Cook Creek Interceptor service area.

The J. Edwards Drain Interceptor has some current and ultimate capacity issues. Much of the capacity of the 12-, 15-, and 18-inch interceptor is being taken up by the Washington Woods LS, which will ultimately pump to the Westside Interceptor. Until the Washington Woods LS is moved to the Westside Interceptor, development in the service areas of the 12-, 15-, and 18-inch

interceptor is severely limited. In the ultimate situation, the 24-inch interceptor is estimated to have a capacity deficiency. However, many assumptions have been made regarding peaking factors and development rates that cause the ultimate estimated peak flow to be fairly conservative. Therefore, the 24-inch interceptor may not have any capacity issues in the future. To ensure that capacity issues are not encountered, development in the JED_4 sub-basin should be closely monitored. Flow monitoring on the interceptor may be necessary if the peak capacity is approached.

Based on the analysis performed for this Master Plan, no other existing sewers or lift stations should have capacity issues. However, development in the area of the existing sewers should be closely monitored to ensure that no other areas will begin to have capacity issues.

4.3 CONCLUSIONS REGARDING PROPOSED SEWERS

The sizing of the proposed sewers and lift stations was discussed in Chapter 3. The sewers were sized based on gravity sewers at minimum slope, unless otherwise noted. The residential development was assumed to take place at 3.0 gross EDUs for much of the area, with the exception of the Southwest basin, which was assumed to develop at 2.5 gross EDUs per acre, and the Northwest basin, which was assumed to develop at a mixture of 2.5 gross EDUs per acre (south of 186th St) and 1.5 gross EDUs per acre (north of 186th Street). Commercial development was assumed to occur at 3.0 gross EDUs per acre for all areas. With these assumptions, the sewers were sized based on an average flow rate determined based on the number of ultimate EDUs and a flow of 310 gallons per day per EDU. Peaking factors were calculated with the IDEM formula. Peak flow rates were then calculated. The peak flow rates were utilized to determine the sewer size, based on the peak capacity of various sewer sizes at minimum slope, or the lift station peak capacity. Several tables in Chapter 3 outline the sizing for the currently undeveloped interceptor basins.

4.4 GIS BASIN UPDATES

The procedure for updating the sewer basins, sub-basins, and sub-sub-basins is outlined below. It must be noted that the procedure outlines updating EDU assignments for sub-sub-basins, which will then update the EDU assignments and flow calculations for the sub-basins and basins.

- Westfield Public Works Department (WPWD) receives a preliminary plat for a new subdivision. The original parcel number(s) for the parcels to be subdivided shall be noted.
- When signing the allocation letter, the spreadsheet shall be updated for the original parcel(s) to update the assumed EDU with the actual allocated EDU assignment.
- In the spreadsheet under the EDU_assignment_all_Current tab, WPWD will change the development class from U to A/D.
- Check the calculation of the flowrate to ensure that it includes the new subdivision.
- Change the mapping to re-assign the new sub-sub-basin from U or UC to an acronym of the subdivision name.

A procedure for changing a sub-basin or sub-sub-basin in GIS and the spreadsheet is outlined below.

- In GIS, enter into an editing session for the Basins_June_2005 shapefile.
- Select the area to be changed.
- Click on the attributes table.
- Make sure that the entire selection is being edited. Edit the sub-sub-basin, sub-basin, and/or basin for the selection.
- Note the parcel numbers or owners of the selection.
- In the main spreadsheet, select the parcels that were changed in GIS. Move the parcels to the newly assigned sub-sub-basin, sub-basin, or basin.
- In the EDU_assignment_all_Ultimate and EDU_assignment_all_Current tabs, add the new sub-sub-basin, sub-basin, or basin and link the new rows to the values in the main spreadsheet.
- In the Sub-Basins Ultimate and Sub-Basins Current tabs, add a new row if a new sub-basin is added and link the new row to the corresponding EDU_assignment_all tab.

APPENDIX A
ABBREVIATIONS

General Abbreviations

Abbreviation	Definition
EDU	Equivalent Dwelling Unit
GIS	Geographic Information System
GPD	Gallons Per Day
GPM	Gallons Per Minute
I/I	Infiltration and Inflow
IDEM	Indiana Department of Environmental Management
LS	Lift Station
MGD	Million Gallons Per Day
PUD	Planned Urban Development
WPWD	Westfield Public Works Department
WWTP	Wastewater Treatment Plant

Basin Abbreviations

Abbreviation	Definition
1_Gray	Includes majority of Bridgewater Club and Setters Place and Setter Run Subdivisions
2_Brook	Includes Brookside, Carey Glen, Crestview, Summit Lakes, Woodshire, and portions of Oak Manor and Bridgewater Club Subdivisions
3_Spring	Includes Brentwood Village, Bridlewood, Spring Meadows, Village Park Estates, and portions of the Bridgewater Club Subdivision
4_Silver	Silver Thorne Subdivision
5_Cool	Cool Creek Circle Subdivision
6_OakMain	Along Oak Road between 161st and 151st
7_OakPark	Oak Park Subdivision
8_OakWoods	Oak Woods Subdivision
9_Oak161	Intersection of 161st St and Oak Road
10_OakMan	Portion of Oak Manor Subdivision that flows to Oak Road LS
II	Downtown Area
Kroger	Westfield Marketplace Shopping Center
JED	J. Edwards Drain Interceptor Service Area
156TH	156th Street Interceptor Service Area
NW	Northwest Area
SW	Southwest Area
VMLS	Viking Meadows Lift Station Service Area
WEST	Westside Interceptor Service Area
WWLS	Washington Woods Lift Station Service Area

Sub-Basin Abbreviations

Abbreviation	Definition
1_Gray_A	Includes Setters Place and Setter Run Subdivisions as well as retail portion of Bridgewater Club
1_Gray_B	Includes portion of Bridgewater Club Subdivision
2_Brook_A	Portion of Bridgewater Club Subdivision that flows to Brookside LS
2_Brook_B	Includes Brookside, Carey Glen, Crestview, Summit Lakes, Woodshire, and portion of Oak Manor Subdivision
2_Brook_C	Includes residences near Bridgewater Club that will flow to Brookside LS when sewered
3_Spring	Includes Brentwood Village, Bridlewood, Spring Meadows, Village Park Estates, and portions of the Bridgewater Club Subdivision
4_Silver	Silver Thorne Subdivision
5_Cool	Cool Creek Circle Subdivision
6_OakMain	Along Oak Road between 161st and 151st
7_OakPark	Oak Park Subdivision
8_OakWoods	Oak Woods Subdivision
9_Oak161	Intersection of 161st St and Oak Road
10_OakMan	Portion of Oak Manor Subdivision that flows to Oak Road LS
Kroger	Westfield Marketplace Shopping Center
II_1	Downtown Area
II_2	Willow Creek Subdivision
II_3	Downtown Area
II_4	Downtown Area
II_5	Includes Coverdale, Emerald Place, Pheasant Run, and Pines of Westfield Subdivisions as well as Ashley Place Aparments
II_6	Downtown Area
II_7	Downtown Area
II_8	Downtown Area (includes High School)
II_10	Carey Commons Subdivision
II_11	Downtown Area
II_12	Westfield Publics Works Office
JED_181ST	181st Street LS Service Area
JED_1	12-inch J. Edwards Drain Interceptor Service Area
JED_2	15-inch J. Edwards Drain Interceptor Service Area
JED_3	18-inch J. Edwards Drain Interceptor Service Area
JED_4	24-inch J. Edwards Drain Interceptor Service Area
156TH_MAIN	Main 156th Street Interceptor Service Area
156TH_MLS	Merrimac Lift Station Service Area
VMLS_1	Portion of Viking Meadows Subdivision + Undeveloped Area North of 156th Street
VMLS_2	Springdale Farms LS Service Area
VMLS_3	Springmill Villages LS Service Area + Portion of Viking Meadows Subdivision

Sub-Basin Abbreviations (Continued)

Abbreviation	Definition
VMLS_4	Area that Currently Flows to 15-inch Carmel Interceptor – Includes Village Farms, Westfield Farms, Shadow Lakes, Bainbridge, Hills & Dales, Beacon Point, and Portion of Springmill Villages
VMLS_5	Southpark LS Service Area
NW_1	Northwest Corner of Township (Between 216th & 186th and County Line and Joliet Rd)
NW_2	Northernmost Area of Northwest Interceptor (Between 216th and 211th and Mule Barn and Lamong Rd)
NW_3	Area Between 211th and 206th and Mule Barn and Lamong Rd
NW_4	Area Between 216th and 206th and Lamong and Moore Rd
NW_5	Area Between 206th and 196th and Lamong and Moore Rd
NW_6	Area Between 206th and 196th and Joliet and Lamong Rd
NW_7	Area Between 196th and 191st and Joliet and Centennial Rd
NW_8	Area Between 191st and 181st and Joliet and Mule Barn
NW_9	Area Between 186th and 166th and County Line and Joliet Rd
NW_10	Area Between 191st and 166th and Mule Barn/Joliet and Centennial Rd
NW_11	Area Between 166th and 161st and County Line and Joliet Rd
NW_12	Area Between 166th and 161st and Joliet and Mule Barn Rd
SW_1	Area Near 156th Between County Line and Joliet Rd
SW_2	Area Near 161st Between County Line and Joliet Rd
SW_3	Area Between 161st and 151st and Shelbourne and Towne Rd
SW_4	Area Near 151st Between County Line and Joliet Rd
SW_5	Area near 151st Between Little Eagle Creek and Shelbourne Rd
SW_6	Area Between 151st and 146th and County Line and Shelbourne Rd
SW_7	Area Between 151st and 146th Near Shelbourne Rd
SW_8	Area Between 151st and 146th and Shelbourne and Towne Rd
WEST_1	Proposed 206th Street LS Service Area
WEST_2	Area Between 211th and 203rd and Moore and Six Points Rd
WEST_3	Area Between 206th and 196th Near Six Points Rd
WEST_4	Area Between 206th and 191st Near Horton St
WEST_5	Area Between 203rd and 191st and Freemont and Six Points Rd
WEST_6	Area Between 199th and 191st and Centennial and Freemont Rd
WEST_7	Area Near 186th Between Eagletown and Casey Rd
WEST_8	Area Between 191st and 186th and Centennial and Eagletown Rd
WEST_9	Area Between 191st and 181st and Centennial and Eagletown Rd
WEST_10	Area Near 193rd Between Casey and Springmill Rd
WEST_11	Area near 186th Between Casey and Springmill Rd
WEST_12	Area Between 191st and SR 32 and Eagletown and Dartown Rd (42-inch Westside Interceptor Area)
WEST_13	Area Between 181st and 166th and Mule Barn and Ditch Rd (54-inch Westside Interceptor Area)

Sub-Basin Abbreviations (Continued)

Abbreviation	Definition
WWLS_CCS	12-inch Cool Creek South Service Area – Includes Grassy Knoll, Washington Woods Elementary, and Oak Manor North
WWLS_CCS_SAN	Sandpiper LS Service Area
WWLS_MAIN_TOM	Tomlinson Road LS Service Area
WWLS_MAIN_AN	Andover LS Service Area
WWLS_MAIN	Main Washington Woods Sewer Service Area
WWLS_196TH	Proposed 196th Street LS Service Area
WWLS_203RD	Proposed 203rd Street LS Service Area
WWLS_216TH	Proposed 216th Street LS Service Area

Appendix B
Current EDU Assignments
Westfield Wastewater Master Plan
Town of Westfield, Indiana

SUBDIVNAME	SUBSUBBASIN	SUB_BASIN	BASIN	ACRES	EDUs	EDUs/acre	Avg. Flow (gpd)	REMARKS	DEVELOPMENT CLASS*
1_Gray_A (Setters Run LS will be re-routed to Viking Meadows LS from Carmel)									
Setters Place	1_Gray_A_SP	1_Gray_A	1_Gray	13	39	3.1			D
Setters Run	1_Gray_A_SR	1_Gray_A	1_Gray	62	178	2.9			D
Bridgewater Club - Commercial	1_Gray_A_BC-C	1_Gray_A	1_Gray	37	137	3.7		From Cripe spreadsheet (Sections M-2 & M-3)	A
Bridgewater Club - Residential	1_Gray_A_BC_R	1_Gray_A	1_Gray	38	240	6.4		From Cripe spreadsheet (Section K-2)	A
Existing Residential - 1_Gray_A	1_Gray_A_E	1_Gray_A	1_Gray	3	2	0.8			EN
Power Station	1_Gray_A_PS	1_Gray_A	1_Gray	13	0	0.0			EN
Existing Commercial - 1_Gray_A	1_Gray_A_EC	1_Gray_A	1_Gray	7	17	2.6			EN
Undeveloped Residential - 1_Gray_A	1_Gray_A_U	1_Gray_A	1_Gray	35	88	2.6			U
TOTAL 1_Gray_A		**1_Gray_A**	**1_Gray**	**150**	**594**		**185,000**		
1_Gray_B (Setters Run LS will be re-routed to Viking Meadows LS from Carmel)									
Bridgewater Club	1_Gray_B_BC	1_Gray_B	1_Gray	122	393	3.2		Sections G-1, G-2, G3-5, E (partial), I-1, I-2, J, & L	D
Bridgewater Club (Future)	1_Gray_B_BC_F	1_Gray_B	1_Gray	174	189	1.1		Based on spreadsheet from Cripe - Sections F, G-6, K-1 & M-1	A
TOTAL 1_Gray_B		**1_Gray_B**	**1_Gray**	**296**	**582**		**181,000**		
TOTAL 1_Gray (Setters Run LS)			**1_Gray**	**446**	**1176**		**366,000**		
2_Brook_A (Bridgewater portion to Brookside LS - flow to Carmel)									
Bridgewater Club	2_Brook_A_BC	2_Brook_A	2_Brook	64	78	1.2		Sections D-1, D-2, E (partial), & clubhouse (45 EDUs)	D
TOTAL 2_Brook_A		**2_Brook_A**	**2_Brook**	**64**	**78**		**25,000**		
2_Brook_B (Existing Residential currently unsewered - potentially to Brookside LS)									
Existing Residential - 2_Brook_B	2_Brook_B_E	2_Brook_B	2_Brook	48	12	0.3		EXISTING RESIDENTIAL	EN
TOTAL 2_Brook_B		**2_Brook_B**	**2_Brook**	**0**	**0**		**0**		
2_Brook_C (Brookside LS - flow to Carmel)									
Brookside	2_Brook_C_BS	2_Brook_C	2_Brook	70	95	1.4		Brookside 1 & 2	D
Brookside - Future	2_Brook_C_BS_F	2_Brook_C	2_Brook	32	100	3.1		Brookside 3 & 4	A
Carey Glen	2_Brook_C_CG	2_Brook_C	2_Brook	15	25	1.7			D
Crest View	2_Brook_C_CV	2_Brook_C	2_Brook	109	240	2.2			D
Summit Lakes	2_Brook_C_SL	2_Brook_C	2_Brook	18	49	2.7			D
Summit Lakes - Future	2_Brook_C_SL_F	2_Brook_C	2_Brook	45	86	1.9			A
Woodshire	2_Brook_C_WS	2_Brook_C	2_Brook	73	29	0.4			EN
Oak Manor	2_Brook_C_OM	2_Brook_C	2_Brook	117	475	4.1		From Oak Manor PUD	D
Carey Ridge Elementary School	2_Brook_C_School	2_Brook_C	2_Brook	31	5	0.2		Based on water usage (from Peg)	ES
Existing Residential/Radiant Christian Life Church/Century 21 - 2_Brook_C	2_Brook_C_E	2_Brook_C	2_Brook	85	19	0.2		EXISTING RESIDENTIAL/Church/Century 21	ES
Undeveloped Residential - 2_Brook_C	2_Brook_C_U	2_Brook_C	2_Brook	239	102	0.4		Assume 0.5 EDUs/acre	U
Undeveloped Employment Area - 2_Brook_C	2_Brook_C_UE	2_Brook_C	2_Brook	69	30	0.4		Assume 0.5 EDUs/acre	U
Undeveloped RR right of way - 2_Brook_C	2_Brook_C_U_RR	2_Brook_C	2_Brook	6	0	0.0		Assume 0.0 EDUs/acre	U
TOTAL 2_Brook_C		**2_Brook_C**	**2_Brook**	**523**	**1094**		**340,000**		
TOTAL 2_Brook (Brookside LS)			**2_Brook**	**587**	**1172**		**365,000**		
3_Spring (Cool Creek Interceptor - flow to Carmel)									
Brentwood Village	3_Spring_BV	3_Spring	3_Spring	20	38	1.9			D
Bridgewater Club	3_Spring_BC	3_Spring	3_Spring	163	33	0.2		Sections A & B (& golf course)	D
Bridgewater Club - Section C	3_Spring_BC_C	3_Spring	3_Spring	27	55	2.0		Based on spreadsheet from Cripe - Section C	D
Bridlewood	3_Spring_BW	3_Spring	3_Spring	65	137	2.1			D
Spring Meadows	3_Spring_SM	3_Spring	3_Spring	4.7	29	6.2			D
Village Park Estates	3_Spring_VPE	3_Spring	3_Spring	15	83	5.4			D
Existing Residential - 3_Spring	3_Spring_E	3_Spring	3_Spring	82	3	0.0			EN
Municipal/Utility	3_Spring_M	3_Spring	3_Spring	1	0	0.0			EN
Retail/Commercial - 3_Spring	3_Spring_Retail	3_Spring	3_Spring	14	36	2.6		Assume 3.0 EDUs/acre	ES
Undeveloped Residential - 3_Spring	3_Spring_U	3_Spring	3_Spring	108	276	2.6		Assume 3.0 EDUs/acre	U
TOTAL 3_Spring		**3_Spring**	**3_Spring**	**309**	**411**		**128,000**		

Appendix B
Current EDU Assignments
Westfield Wastewater Master Plan
Town of Westfield, Indiana

SUBDIVNAME	SUBSUBBASIN	SUB_BASIN	BASIN	ACRES	EDUs	EDUs/acre	Avg. Flow (gpd)	REMARKS	DEVELOPMENT CLASS*
4_Silver (Cool Creek Interceptor - flow to Carmel)									
Silver Thorne	4_Silver-ST	4_Silver	4_Silver	31	158	5.2			D
Tuttle Grove Apartments	4_Silver_TG	4_Silver	4_Silver	24	143	6.0		Assume 7.0 EDUs/acre	D
Retail/Commercial - 4_Silver	4_Silver_Retail	4_Silver	4_Silver	129	329	2.6		Assume 3.0 EDUs/acre	ES
Park/Open Space - 4_Silver	4_Silver_Park	4_Silver	4_Silver	91	0	0.0		Assume 0.0 EDUs/acre	ES
TOTAL 4_Silver		**4_Silver**	**4_Silver**	**274**	**629**		**196,000**		
5_Cool (Cool Creek Interceptor - flow to Carmel)									
Cool Creek Circle	5_Cool_CCC	5_Cool	5_Cool	21	18	0.8			D
Existing Residential - 5_Cool	5_Cool_E	5_Cool	5_Cool	92	9	0.1			EN
Existing Retail/Commercial - 5_Cool	5_Cool_Retail	5_Cool	5_Cool	2.1	5	2.6		Assume 3.0 EDUs/acre	EN
Future Residential	5_Cool_FR	5_Cool	5_Cool	24	62	2.6		Assume 3.0 EDUs/acre	A
Future Commercial	5_Cool_FC	5_Cool	5_Cool	70	177	2.6		Assume 3.0 EDUs/acre	A
Undeveloped Residential - 5_Cool	5_Cool_U	5_Cool	5_Cool	41	103	2.6		Assume 3.0 EDUs/acre	U
Flood Plain	5_Cool_FP	5_Cool	5_Cool	19	0	0.0		Assume 0.0 EDUs/acre	U
TOTAL 5_Cool		**5_Cool**	**5_Cool**	**115**	**257**		**80,000**		
6_OakMain (Oak Road Interceptor - flow to Carmel)									
Existing Residential - 6_OakMain	6_OakMain_E	6_OakMain	6_OakMain	171	16	0.1			EN
Undeveloped Residential - 6_OakMain	6_OakMain_U	6_OakMain	6_OakMain	78	200	2.6		Assume 3.0 EDUs/acre	U
TOTAL 6_OakMain		**6_OakMain**	**6_OakMain**	**0**	**0**		**0**		
7_OakPark (Oak Road Interceptor - flow to Carmel)									
Oak Park	7_OakPark_OP	7_OakPark	7_OakPark	57	32	0.6			D
Oak Park - Future	7_OakPark_OP_F	7_OakPark	7_OakPark	18	45	2.6		Assume 3.0 EDUs/acre	A
TOTAL 7_OakPark		**7_OakPark**	**7_OakPark**	**75**	**77**		**24,000**		
8_OakWoods (Oak Road Interceptor - flow to Carmel)									
Oak Woods	8_OakWoods_OW	8_OakWoods	8_OakWoods	37	14	0.4			D
TOTAL 8_OakWoods		**8_OakWoods**	**8_OakWoods**	**37**	**14**		**5,000**		
9_Oak161 (Oak Road Interceptor - flow to Carmel)									
Existing Residential - 9_Oak161	9_Oak161_E	9_Oak161	9_Oak161	2.8	1	0.4			EN
Undeveloped Residential - 9_Oak161	9_Oak161_U	9_Oak161	9_Oak161	34	87	2.6		Assume 3.0 EDUs/acre	U
TOTAL 9_Oak161		**9_Oak161**	**9_Oak161**	**0**	**0**		**0**		
10_OakMan (Oak Manor Subdvision to Oak Road LS - flow to Carmel)									
Oak Manor	10_OakMan_OM	10_OakMan	10_OakMan	194	290	1.5		Existing Oak Manor + 225 EDUs from PUD	D
Existing Residential - 10_OakMan	10_OakMan_E	10_OakMan	10_OakMan	1.4	1	0.7			EN
TOTAL 10_OakMan		**10_OakMan**	**10_OakMan**	**194**	**290**		**90,000**		
Kroger (new Kroger to Oak Road LS - flow to Carmel)									
Retail/Commercial	Kroger_Retail	Kroger	Kroger	38	64	1.7		Assume 2.0 EDUs/acre	A
TOTAL Kroger		**Kroger**	**Kroger**	**38**	**64**		**20,000**		
II_1 (Downtown area to Oak Road LS - flow to Carmel)									
Broadview	II_1_BR	II_1	II	8.9	20	2.2			ES
Gifford Addition	II_1_GA	II_1	II	3.0	10	3.4			ES
Harvest Meadows	II_1_HM	II_1	II	24	113	4.7			ES
North Union Heights	II_1_NUH	II_1	II	4.8	21	4.4			ES
Pine Hollow	II_1_PH	II_1	II	2.4	8	3.4			ES
Roberts Rolling Acre	II_1_RRA	II_1	II	6.5	18	2.8			ES
Silver Lakes	II_1_SL	II_1	II	19	48	2.5			ES
Sleepy Hollow	II_1_SH	II_1	II	8.9	29	3.3			ES
Sycamore	II_1_SY	II_1	II	18	52	2.9			ES
Westfield Green Street	II_1_WG	II_1	II	7.0	18	2.6			ES
Existing Residential - II_1	II_1_E	II_1	II	7.9	19	2.4			ES
Existing Apartments - II_1	II_1_APTS	II_1	II	4.2	5	1.2		Based on water usage (from Peg)	ES
Existing Commercial - II_1	II_1_EC	II_1	II	4.4	11	2.6		Assume 3.0 EDUs/acre	ES
TOTAL II_1		**II_1**	**II**	**119**	**372**		**116,000**		
II_2 (Willow Creek Subdivision to Oak Road LS - flow to Carmel)									
Willow Creek	II_2_WC	II_2	II	48	158	3.3			D
Existing Residential - II_2	II_2_E	II_2	II	5.4	3	0.6			ES
First Baptist Church	II_2_Church	II_2	II	5.4	2	0.4		Based on water usage (from Peg)	ES
Existing Commercial - II_2	II_2_EC	II_2	II	20	52	2.6		Assume 3.0 EDUs/acre	ES
Undeveloped Commercial - II_2	II_2_UC	II_2	II	13	33	2.6		Assume 3.0 EDUs/acre	U
TOTAL II_2		**II_2**	**II**	**79**	**215**		**67,000**		

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SUBDIVNAME	SUBSUBBASIN	SUB_BASIN	BASIN	ACRES	EDUs	EDUs/acre	Avg. Flow (gpd)	REMARKS	DEVELOPMENT CLASS*
II_3 (Downtown area to Oak Road LS - flow to Carmel)									
Asa Beals	II_3_AB	II_3	II	3.8	15	3.9			D
John Kerr	II_3_JK	II_3	II	1.3	6	4.6			D
Kenyon Subdivision	II_3_KS	II_3	II	2.9	9	3.1			D
Roberts Rolling Acre	II_3_RRA	II_3	II	5.2	13	2.5			D
Sleepy Hollow	II_3_SH	II_3	II	5.0	15	3.0			D
Westfield Original - Residential	II_3_WO_R	II_3	II	1.9	7	3.6			ES
Westfield Original - Commercial	II_3_WO_C	II_3	II	1.0	3	2.6		Assume 3.0 EDUs/acre	ES
Westfield Original - Apartments	II_3_WO_APTS	II_3	II	0.6	4	6.7		Assume 4 apartments	ES
Existing Residential - II_3	II_3_E	II_3	II	8.3	13	1.6			ES
Christ United Methodist Church	II_3_Church	II_3	II	8.4	1	0.1		Based on water usage (from Peg)	ES
TOTAL II_3		**II_3**	**II**	**39**	**85**		**27,000**		
II_4 (Downtown area to Oak Road LS - flow to Carmel)									
Asa Beals	II_4_AB	II_4	II	1.5	7	4.7			D
Cherry Wood Estates	II_4_CWE	II_4	II	5.7	29	5.1			D
I B Anderson - Residential	II_4_IBA_R	II_4	II	1.6	7	4.3			D
I B Anderson - Commercial	II_4_IBA_C	II_4	II	0.5	1	2.6			D
Mill Stream	II_4_MS	II_4	II	1.4	3	2.1			D
R P Cox	II_4_RPC	II_4	II	2.4	11	4.5			D
Union Bible College/Seminary	II_4_UBC	II_4	II	7	10	1.4		Based on water usage (from Peg)	ES
Sander's	II_4_SA	II_4	II	3.6	12	3.4			D
Southridge	II_4_SR	II_4	II	6.0	33	5.5			D
Timberbrook Run II	II_4_TR	II_4	II	12	39	3.2			D
Watson - Residential	II_4_WA_R	II_4	II	4.3	5	1.2			ES
Watson - Commercial	II_4_WA_C	II_4	II	0.9	2	2.6		Assume 3.0 EDUs/acre	ES
Westfield Original - Residential	II_4_WO_R	II_4	II	7.0	17	2.4			ES
Westfield Original - Commercial	II_4_WO_C	II_4	II	4.3	11	2.6		Assume 3.0 EDUs/acre	ES
Westfield Original - Apartments	II_4_WO_APTS	II_4	II	0.3	4	13.5		Assume 4 apartments	ES
Woodside Estates	II_4_WE	II_4	II	12	15	1.2			D
Hamilton Square Apartments	II_4_HSA	II_4	II	28	23	0.8		Based on water usage (from Peg)	D
Existing Residential - II_4	II_4_E	II_4	II	56	72	1.3			ES
Existing Apartments - II_4	II_4_APTS	II_4	II	0.2	4	21.2		Assume 4 apartments	ES
Existing Commercial - II_4	II_4_EC	II_4	II	59	150	2.6		Assume 3.0 EDUs/acre	ES
Westfield Associates Nursing Home?	II_4_NH	II_4	II	9.1	28	3.1		Based on water usage (from Peg)	ES
Union Friends & Westfield Friends Churches	II_4_Church	II_4	II	6.3	1	0.2		Based on water usage (from Peg)	ES
Westfield Cemetery	II_4_CE	II_4	II	0.8	0	0.0		Assume 0.0 EDUs/acre	EN
Railroad Right-of-Way	II_4_RR	II_4	II	6.1	0	0.0		Assume 0.0 EDUs/acre	EN
Undeveloped Commercial - II_4	II_4_UC	II_4	II	88	225	2.6		Assume 3.0 EDUs/acre	U
TOTAL II_4		**II_4**	**II**	**229**	**485**		**151,000**		
II_5 (Subdivisions to Oak Road LS - flow to Carmel)									
Coverdale	II_5_CD	II_5	II	10	56	5.8			D
Emerald Place	II_5_EP	II_5	II	12	46	3.9			D
Pheasant Run	II_5_PR	II_5	II	17	44	2.5			D
Pines of Westfield	II_5_PW	II_5	II	34	63	1.8			D
Ashley Place Apartments	II_5_APA	II_5	II	16	97	6.0		Assume 7.0 EDUs/acre	D
Existing Residential - II_5	II_5_E	II_5	II	11	4	0.4			ES
TOTAL II_5		**II_5**	**II**	**100**	**310**		**96,000**		
II_6 (Downtown areas to Oak Road LS - flow to Carmel)									
Abel Doans - Residential	II_6_AB_R	II_6	II	5.8	26	4.5			D
Abel Doans - Commercial	II_6_AB_C	II_6	II	10	27	2.6		Assume 3.0 EDUs/acre	D
Mill Stream	II_6_MS	II_6	II	1.3	6	4.6			D
Existing Residential - II_6	II_6_E	II_6	II	32	49	1.5			ES
Existing Commercial - II_6	II_6_EC	II_6	II	317	404	1.3		Assume 1.5 EDUs/acre	ES
Railroad Right-of-Way & Water Tower	II_6_RR	II_6	II	10	0	0.0		Assume 0.0 EDUs/acre	EN
TOTAL II_6		**II_6**	**II**	**367**	**511**		**159,000**		
II_7 (Downtown areas to Oak Road LS - flow to Carmel)									
Newby's First Addition	II_7_NFA	II_7	II	1.5	4	2.7			D
Newby's Westfield Heights	II_7_NWH	II_7	II	19	65	3.5			D
Existing Residential - II_7	II_7_E	II_7	II	2.0	4	2.0			ES
Westfield-Washington Schools	II_7_School	II_7	II	67	14	0.2		Based on water usage (from Peg)	ES
TOTAL II_7		**II_7**	**II**	**89**	**87**		**28,000**		

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SUBDIVNAME	SUBSUBBASIN	SUB_BASIN	BASIN	ACRES	EDUs	EDUs/acre	Avg. Flow (gpd)	REMARKS	DEVELOPMENT CLASS*
II_8 (Downtown areas to Oak Road LS - flow to Carmel)									
Asa Beals	II_8_AB	II_8	II	0.8	2	2.7			D
Bowman	II_8_BO	II_8	II	3.0	9	3.0			D
Broadview	II_8_BR	II_8	II	1.6	4	2.5			D
Maple Park	II_8_MP	II_8	II	2.7	6	2.2			D
Wesleyon Church & Church of Christ	II_8_Church	II_8	II	3.4	0	0.1		Based on water usage (from Peg)	ES
Westfield Village Nursing Home	II_8_NH	II_8	II	3.4	26	7.7		Based on water usage (from Peg)	ES
Newby's First Addition	II_8_NFA	II_8	II	1.4	2	1.4			D
Newby's Westfield Heights - Park	II_8_NWH_P	II_8	II	5.9	0	0.0			ES
Westfield Original - Residential	II_8_WO_R	II_8	II	0.9	4	4.4			ES
Westfield Original - Commercial	II_8_WO_C	II_8	II	1.0	3	2.6		Assume 3.0 EDUs/acre	ES
Westifeld Original - Municipal	II_8_WO_M	II_8	II	0.5	1	2.6		Assume 3.0 EDUs/acre	ES
Existing Residential - II_8	II_8_E	II_8	II	17	17	1.0			ES
Existing Commercial - II_8	II_8_EC	II_8	II	41	31	0.8		Assume 3.0 EDUs/acre	ES
Westfield-Washington Schools	II_8_School	II_8	II	75	35	0.5		Based on water usage (from Peg)	ES
Water Tower/Booster Station	II_8_WT	II_8	II	0.2	0	0.0		Assume 0.0 EDUs/acre	ES
Cemetery	II_8_CE	II_8	II	1.3	0	0.0		Assume 0.0 EDUs/acre	ES
Undeveloped Commercial - II_8	II_8_UC	II_8	II	26	67	2.6		Assume 3.0 EDUs/acre	U
TOTAL II_8		**II_8**	**II**	**159**	**142**		**44,000**		
II_10 (Carey Commons Subdivision to Oak Road LS - flow to Carmel)									
Carey Commons	II_10_CC	II_10	II	16	66	4.0			D
TOTAL II_10		**II_10**	**II**	**16**	**66**		**21,000**		
II_11 (Downtown areas to Oak Road LS - flow to Carmel)									
Kellie's Lane	II_11_KL	II_11	II	6.8	3	0.4			D
Existing Residential - II_11	II_11_E	II_11	II	46	10	0.2			EN
Summit Lawn Cemetery	II_11_CE	II_11	II	25	0	0.0		Assume 0.0 EDUs/acre	EN
Undeveloped Residential - II_11	II_11_U	II_11	II	18	47	2.6		Assume 3.0 EDUs/acre	U
TOTAL II_11		**II_11**	**II**	**7**	**3**		**1,000**		
II_12 (Area near WPWD office to Oak Road LS - flow to Carmel)									
Existing Residential - II_12	II_12_E	II_12	II	30	4	0.1			EN
Westfield Public Works Office	II_12_M	II_12	II	36	0	0.0		Assume 0.0 EDUs/acre	EN
TOTAL II_12		**II_12**	**II**	**0**	**0**		**0**		
TOTAL II - flow to Carmel			**II**	**1203**	**2276**		**710,000**		
VMLS_1 (Viking Meadows Subdivision north of 156th Street - to Viking Meadows LS - flow to WWTP)									
Helios Subdivision	VMLS_1_HS	VMLS_1	VMLS	15	13	0.9			EN
Viking Meadows	VMLS_1_VM	VMLS_1	VMLS	188	252	1.3			A
Existing Residential - VMLS_1	VMLS_1_E	VMLS_1	VMLS	42	13	0.3			EN
Undeveloped Residential - VMLS_1	VMLS_1_U	VMLS_1	VMLS	104	266	2.6		Assume 3.0 EDUs/acre	U
Church	VMLS_1_Church	VMLS_1	VMLS	19	60	3.2			EN/U
TOTAL VMLS_1		VMLS_1	VMLS	**188**	**252**		**79,000**		
VMLS_2 (flow to existing Springdale Farms LS - will be rerouted to Viking Meadows LS - flow to WWTP)									
Mulberry Farms	VMLS_2_MF	VMLS_2	VMLS	22	53	2.4			D
Oak Ridge Crossing	VMLS_2_ORC	VMLS_2	VMLS	32	93	2.9			D
Springdale Farms	VMLS_2_SF	VMLS_2	VMLS	33	94	2.8			D
Crossings at Springmill Villages	VMLS_2_CSV	VMLS_2	VMLS	17	52	3.1			D
TOTAL VMLS_2		VMLS_2	VMLS	**104**	**292**		**91,000**		
VMLS_3 (flow to existing Springmill Villages LS + Viking Meadows south of 156th Street - to Viking Meadows LS - flow to WWTP)									
Crossings at Springmill Villages	VMLS_3_CSV	VMLS_3	VMLS	23	68	3.0			D
Meadows at Springmill Villlages	VMLS_3_MSV	VMLS_3	VMLS	42	65	1.5			D
Viking Meadows	VMLS_3_VM	VMLS_3	VMLS	123	74	0.6			A
Westfield Tech Park	VMLS_3_WTP	VMLS_3	VMLS	27	220	8.2		From developer sheet	A
Existing Residential - VMLS_3	VMLS_3_E	VMLS_3	VMLS	12	3	0.2			ES
Church	VMLS_3_CHURCH	VMLS_3	VMLS	15	25	1.6		Assume 25 EDUs	EN
Existing Commercial - VMLS_3	VMLS_3_EC	VMLS_3	VMLS	11	28	2.6		Assume 3.0 EDUs/acre	ES
Undeveloped Residential - VMLS_3	VMLS_3_U	VMLS_3	VMLS	19	47	2.6		Assume 3.0 EDUs/acre	U
TOTAL VMLS_3		VMLS_3	VMLS	**238**	**458**		**142,000**		
VMLS_4 (currently flow goes to Carmel - will go to Viking Meadows LS in future)									
Crossings at Springmill Villages	VMLS_4_CSV	VMLS_4	VMLS	25	82	3.2			D
Meadows at Springmill Villlages	VMLS_4_MSV	VMLS_4	VMLS	20	49	2.4			D
Beacon Point	VMLS_4_BP	VMLS_4	VMLS	45	104	2.3			D
Hills & Dales West	VMLS_4_HDW	VMLS_4	VMLS	25	10	0.4			D
Shadow Lakes	VMLS_4_SL	VMLS_4	VMLS	22	53	2.4			D
Village Farms	VMLS_4_VF	VMLS_4	VMLS	381	759	2.0			D
Westfield Farms	VMLS_4_WF	VMLS_4	VMLS	42	102	2.4			D
Bainbridge	VMLS_4_BB	VMLS_4	VMLS	10	15	1.6			D
Existing Residential - VMLS_4	VMLS_4_E	VMLS_4	VMLS	31	10	0.3			ES
Existing Commercial - VMLS_4	VMLS_4_EC	VMLS_4	VMLS	40	103	2.6		Assume 3.0 EDUs/acre	ES
Undeveloped Residential - VMLS_4	VMLS_4_U	VMLS_4	VMLS	77	196	2.6		Assume 3.0 EDUs/acre	U
TOTAL VMLS_4		VMLS_4	VMLS	**642**	**1287**		**399,000**		

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SUBDIVNAME	SUBSUBBASIN	SUB_BASIN	BASIN	ACRES	EDUs	EDUs/acre	Avg. Flow (gpd)	REMARKS	DEVELOPMENT CLASS*
VMLS_5 (currently flow goes to J. Edwards Drain via Southpark LS - will go to Viking Meadows LS in future)									
Ridgewood	VMLS_5_RW	VMLS_5	VMLS	27	35	1.3			EN
Countryside	VMLS_5_CS	VMLS_5	VMLS	47	150	3.2			D
Countryside - Undeveloped	VMLS_5_CS_U	VMLS_5	VMLS	21	53	2.6		Assume 3.0 EDUs/acre	A
Farr Hills	VMLS_5_FH	VMLS_5	VMLS	19	36	1.9			EN
Jack's Lane	VMLS_5_JL	VMLS_5	VMLS	2	2	0.8			EN
Buena Vista	VMLS_5_BU	VMLS_5	VMLS	5	10	1.9			EN
Existing Residential - VMLS_5	VMLS_5_E	VMLS_5	VMLS	18	10	0.5			EN
RR Right of Way/Municipal	VMLS_5_RR	VMLS_5	VMLS	7	0	0.0		Assume 0.0 EDUs/acre	EN
Viking Meadows - Commercial	VMLS_5_VM_C	VMLS_5	VMLS	13	32	2.6		Assume 3.0 EDUs/acre	A
Existing Commercial - VMLS_5	VMLS_5_EC	VMLS_5	VMLS	73	187	2.6		Assume 3.0 EDUs/acre	ES
Future Church (Hebrew Congregation)?	VMLS_5_CHURCH	VMLS_5	VMLS	33	25	0.8		Assume 25 EDUs	U
Undeveloped Residential	VMLS_5_U	VMLS_5	VMLS	54	137	2.6		Assume 3.0 EDUs/acre	U
Undeveloped Commercial	VMLS_5_UC	VMLS_5	VMLS	93	236	2.6		Assume 3.0 EDUs/acre	U
RR Right of Way	VMLS_1_RR	VMLS_5	VMLS	4	0	0.0		Assume 0.0 EDUs/acre	EN
TOTAL VMLS_5		VMLS_5	VMLS	**153**	**422**		**131,000**		
TOTAL_VMLS			VMLS	**1326**	**2710**		**842,000**		
156TH_MLS (Merrimac LS - flow to WWTP)									
Mulberry Farms	156TH_MLS_MF	156TH_MLS	156TH	14	26	1.9			D
Crossings at Springmill Villages	156TH_MLS_CSV	156TH_MLS	156TH	23	57	2.5			D
Meadows at Springmill Villlages	156TH_MLS_MSV	156TH_MLS	156TH	11	18	1.7			D
Centennial	156TH_MLS_CEN	156TH_MLS	156TH	366	1107	3.0			D
Crosswind Commons	156TH_MLS_CC	156TH_MLS	156TH	27	63	2.4			D
Merrimac	156TH_MLS_ME	156TH_MLS	156TH	129	293	2.3			D
Landmark on Spring Mill Apts	156TH_MLS_APTS	156TH_MLS	156TH	39	150	3.9		Based on water usage (from Peg)	D
Shamrock Springs Elementary School	156TH_MLS_SCHO	156TH_MLS	156TH	56	32	0.6		Based on water usage (from Peg)	ES
Church	156TH_MLS_CHUR	156TH_MLS	156TH	7	25	3.7		Assume 25 EDUs	A
Existing Residential - 156TH_MLS	156TH_MLS_E	156TH_MLS	156TH	50	8	0.2			ES
Undeveloped Residential	156TH_MLS_U	156TH_MLS	156TH	139	355	2.6			U
TOTAL 156TH_MLS		156TH_MLS	156TH	**721**	**1779**		**552,000**		
156TH_MAIN (Areas to main 156th Street Interceptor - flow to WWTP)									
Bent Creek	156TH_MAIN_BC	156TH_MAIN	156TH	129	328	2.6		Assume 3.0 EDUs/acre - PUD available?	A
Existing Residential - 156TH_MAIN	156TH_MAIN_E	156TH_MAIN	156TH	171	33	0.2			EN
Golf Course	156TH_MAIN_GC	156TH_MAIN	156TH	153	0	0.0		Assume 0.0 EDUs/acre	EN
Municipal/Government	156TH_MAIN_M	156TH_MAIN	156TH	17	0	0.0		Assume 0.0 EDUs/acre	EN
Undeveloped Residential	156TH_MAIN_U	156TH_MAIN	156TH	1785	4552	2.6		Assume 3.0 EDUs/acre	U
TOTAL 156TH_MAIN		156TH_MAIN	156TH	**129**	**328**		**102,000**		
TOTAL_156TH			156TH	**850**	**2107**		**654,000**		
JED_181ST (181st Street LS - flow to WWTP)									
Trailer Park (From 181st St LS)	JED_181ST_TP	JED_181ST	JED	47	157	3.3		Based on flows at lift station	D
TOTAL JED_181ST		JED_181ST	JED	**47**	**157**		**49,000**		
JED_1 (12-inch J. Edwards Drain Interceptor - flow to WWTP)									
Existing Residential - JED_1	JED_1_E	JED_1	JED	23	12	0.5			ES
Medical Clinic	JED_1_MED	JED_1	JED	10	0.3	0.0		Based on water usage (from Peg)	D
Alpha Tau Industrial Park	JED_1_AT	JED_1	JED	20	3	0.2		Based on water usage (from Peg)	D
Existing Employment Area	JED_1_EM	JED_1	JED	5	4	0.9		Assume 1.0 EDUs/acre	ES
Undeveloped Employment Area - JED_1	JED_1_EM_U	JED_1	JED	151	193	1.3		Assume 1.5 EDUs/acre	U
TOTAL JED_1		JED_1	JED	**58**	**20**		**7,000**		
JED_2 (15-inch J. Edwards Drain Interceptor - flow to WWTP)									
Pine Ridge/Quail Ridge	JED_2_PRQ	JED_2	JED	86	329	3.8			D
Countryside	JED_2_CS	JED_2	JED	88	317	3.6			D
Undeveloped Residential - JED_2	JED_2_U	JED_2	JED	17	43	2.6		Assume 3.0 EDUs/acre	U
Municipal/Government	JED_2_M	JED_2	JED	19	5	0.2		Based on water usage (from Peg)	D
Tiller Industrial Park	JED_2_TIP	JED_2	JED	30	4	0.1		Based on water usage (from Peg)	D
Undeveloped Employment Area - JED_2	JED_2_EM_U	JED_2	JED	47	60	1.3		Assume 1.5 EDUs/acre	U
TOTAL JED_2		JED_2	JED	**223**	**654**		**203,000**		
JED_3 (18-inch J. Edwards Drain Interceptor - flow to WWTP)									
Mapleton at Countryside	JED_3_MCS	JED_3	JED	21	170	8.2			D
Countryside	JED_3_CS	JED_3	JED	229	654	2.9			D
Villas at Oak Ridge Condominiums	JED_3_VOR	JED_3	JED	10	24	2.5			D
Existing Residential - JED_3	JED_3_E	JED_3	JED	29	6	0.2			EN
Church	JED_3_CHURCH	JED_3	JED	2	2	1.1		Assume 200 seats	EN
Oak Trace Elementary School	JED_3_SCHOOL	JED_3	JED	22	9	0.4		Based on water usage (from Peg)	ES
Undeveloped Residential - JED_3	JED_3_U	JED_3	JED	73	187	2.6		Assume 3.0 EDUs/acre	U
Undeveloped Commercial - JED_3	JED_3_UC	JED_3	JED	14	37	2.6		Assume 3.0 EDUs/acre	U
TOTAL JED_3		JED_3	JED	**281**	**857**		**266,000**		

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SUBDIVNAME	SUBSUBBASIN	SUB_BASIN	BASIN	ACRES	EDUs	EDUs/acre	Avg. Flow (gpd)	REMARKS	DEVELOPMENT CLASS*
JED_4 (24-inch J. Edwards Drain Interceptor - includes Maple Knoll - flow to WWTP)									
Maple Knoll	JED_4_MK	JED_4	JED	505	1800	3.6		Maximum from Maple Knoll PUD	A
Maple Knoll - School	JED_4_MK_SCHOC	JED_4	JED	35	9	0.3		Based on water usage at Oak Trace (from Peg)	A
Maple Knoll - Water Tower	JED_4_MK_M	JED_4	JED	3	0	0.0		Assume 0.0 EDUs/acre	A
Catholic Church (St. Maria Goretti?)	JED_4_MK_CHURC	JED_4	JED	56	25	0.4		Assume 20 EDUs	ES
Spring Mill Estates	JED_4_SME	JED_4	JED	19	8	0.4			EN
Existing Residential - JED_4	JED_4_E	JED_4	JED	34	5	0.1			EN
Existing Commercial - JED_4	JED_4_EC	JED_4	JED	76	195	2.6		Assume 3.0 EDUs/acre	EN
Municipal/Government	JED_4_M	JED_4	JED	5	0	0.0		Assume 0.0 EDUs/acre	EN
Undeveloped Residential - JED_4	JED_4_U	JED_4	JED	276	704	2.6		Assume 3.0 EDUs/acre	U
Undeveloped Commercial - JED_4	JED_3_UC	JED_4	JED	109	277	2.6		Assume 3.0 EDUs/acre	U
TOTAL JED_4		JED_4	JED	**600**	**1834**		**569,000**		
TOTAL JED			JED	**1162**	**3366**		**1,045,000**		
WWLS_CCS (This sub-basin will be re-routed to Washington Woods LS via Cool Creek South sewer - currently goes south to Oak Road LS)									
Grassy Knoll	WWLS_CCS_GK	WWLS_CCS	WWLS	20	88	4.3			D
Washington Woods Elementary School	WWLS_CCS_SCHO	WWLS_CCS	WWLS	80	8	0.1		Based on water usage (from Peg)	ES
Existing Residential - II_13	WWLS_CCS_E	WWLS_CCS	WWLS	21	2	0.1			EN
Existing Commercial - II_13	WWLS_CCS_EC	WWLS_CCS	WWLS	1.7	4	2.6		Assume 3.0 EDUs/acre	ES
Washinton Park Cemetery	WWLS_CCS_CE	WWLS_CCS	WWLS	107	0	0.0		Assume 0.0 EDUs/acre	EN
Undeveloped Commercial - II_13	WWLS_CCS_UC	WWLS_CCS	WWLS	22	57	2.6		Assume 3.0 EDUs/acre	U
TOTAL WWLS_CCS		**WWLS_CCS**	**WWLS**	**102**	**101**		**32,000**		
WWLS_CCS_SAN (Sandpiper LS will be re-routed to Washington Woods LS via Cool Creek South sewer)									
Ashfield	WWLS_CCS_SAN_	WWLS_CCS_S	WWLS	21	84	4.0			D
Emlee	WWLS_CCS_SAN_	WWLS_CCS_S	WWLS	9.0	9	1.0			EN
Pebble Run at Sandpiper Lakes	WWLS_CCS_SAN_	WWLS_CCS_S	WWLS	20	66	3.3			D
Sandpiper Lakes (includes Sandpiper Forest)	WWLS_CCS_SAN_	WWLS_CCS_S	WWLS	66	221	3.3			D
Existing Residential - II_9	WWLS_CCS_SAN_	WWLS_CCS_S	WWLS	7	5	0.7			EN
Undeveloped Residential - II_9	WWLS_CCS_SAN_	WWLS_CCS_S	WWLS	11	27	2.6		Assume 3.0 EDUs/acre	U
TOTAL WWLS_CCS_SAN		**WWLS_CCS_**	**WWLS**	**107**	**371**		**116,000**		
WWLS_MAIN_TOM (Tomlinson Rd LS - flows to J. Edwards now; flows to Westside Int in future)									
North Bokeelia	WWLS_MAIN_TOM	WWLS_MAIN_	WWLS	19	22	1.2		Will go to Tomlinson Rd LS soon	EN
Existing Residential - WWLS_MAIN_TOM	WWLS_MAIN_TOM	WWLS_MAIN_	WWLS	51	22	0.4			ES
Church	WWLS_MAIN_TOM	WWLS_MAIN_	WWLS	10	20	2.0		Assume 20 EDUs per church	EN
Undeveloped School	WWLS_MAIN__TON	WWLS_MAIN_	WWLS	87	9	0.1		Assume 13 EDUs (based on Oak Trace)	U
Undeveloped Residential - WWLS_MAIN_TOM	WWLS_MAIN_TOM	WWLS_MAIN_	WWLS	401	1022	2.6		Assume 3.0 EDUs/acre	U
Undeveloped Commercial - WWLS_MAIN_TOM	WWLS_MAIN_TOM	WWLS_MAIN_	WWLS	59	151	2.6		Assume 3.0 EDUs/acre	U
TOTAL WWLS_MAIN_TOM		**WWLS_MAIN_**	**WWLS**	**51**	**22**		**7,000**		
WWLS_MAIN_AN (Andover LS - flows to Washington Woods LS)									
Andover	WWLS_MAIN_AN_A	WWLS_MAIN_	WWLS	352	640	1.8		From Andover PUD	A
Existing Residential - WWLS_MAIN_AN	WWLS_MAIN_AN_E	WWLS_MAIN_	WWLS	65	13	0.2			EN
Undeveloped Residential - WWLS_MAIN_AN	WWLS_MAIN_AN_U	WWLS_MAIN_	WWLS	46	117	2.6		Assume 3.0 EDUs/acre	U
TOTAL WWLS_MAIN_AN		**WWLS_MAIN_**	**WWLS**	**352**	**640**		**199,000**		
WWLS_MAIN (Main interceptor to Washington Woods LS - flow to WWTP)									
Shady Nook Acres	WWLS_MAIN_SNA	WWLS_MAIN	WWLS	9	8	0.9			EN
Morgan Woods	WWLS_MAIN_MW	WWLS_MAIN	WWLS	21	33	1.6			ES
Brookview Place	WWLS_MAIN_BP	WWLS_MAIN	WWLS	19	41	2.1			EN
Canary Meadows	WWLS_MAIN_CM	WWLS_MAIN	WWLS	5	3	0.5			EN
Existing Residential - WWLS_MAIN	WWLS_MAIN_E	WWLS_MAIN	WWLS	424	355	0.8			EN
Existing Commercial - WWLS_MAIN	WWLS_MAIN_EC	WWLS_MAIN	WWLS	94	240	2.6		Assume 3.0 EDUs/acre	EN
Cemetery	WWLS_MAIN_CE	WWLS_MAIN	WWLS	1	0	0.0		Assume 0.0 EDUs/acre	EN
Church	WWLS_MAIN_CHU	WWLS_MAIN	WWLS	2	20	10.8		Assume 20 EDUs per church	EN
Undeveloped School	WWLS_MAIN_SCH	WWLS_MAIN	WWLS	87	9	0.1		Assume 13 EDUs (based on Oak Trace)	U
Undeveloped Residential - WWLS_MAIN	WWLS_MAIN_U	WWLS_MAIN	WWLS	402	1026	2.6		Assume 3.0 EDUs/acre	U
Undeveloped Commercial - WWLS_MAIN	WWLS_MAIN_UC	WWLS_MAIN	WWLS	538	1371	2.6		Assume 3.0 EDUs/acre	U
TOTAL WWLS_MAIN		WWLS_MAIN	WWLS	**21**	**33**		**11,000**		
WWLS_196TH (Future 196th Street LS - flow to WWTP via Washington Woods LS)									
Existing Residential - WWLS_196TH	WWLS_196TH_E	WWLS_196TH	WWLS	40	18	0.5			EN
Existing Commercial - WWLS_196TH	WWLS_196TH_EC	WWLS_196TH	WWLS	105	269	2.6		Assume 3.0 EDUs/acre	EN
Municipal	WWLS_196TH_M	WWLS_196TH	WWLS	1	0	0.0		Assume 0.0 EDUs/acre	EN
Undeveloped Residential - WWLS_196TH	WWLS_196TH_U	WWLS_196TH	WWLS	1542	3933	2.6		Assume 3.0 EDUs/acre	U
Undeveloped Commercial - WWLS_196TH	WWLS_196TH_UC	WWLS_196TH	WWLS	164	418	2.6		Assume 3.0 EDUs/acre	U
TOTAL WWLS_196TH		WWLS_196TH	WWLS	**0**	**0**		**0**		
WWLS_203RD (Future 203rd Street LS - flow to WWTP via Washington Woods LS)									
Colonial Hills Estates	WWLS_203RD_CH	WWLS_203RD	WWLS	7	5	0.7			EN
Style Rite Meadows	WWLS_203RD_SR	WWLS_203RD	WWLS	21	30	1.5			EN
Existing Residential - WWLS_203RD	WWLS_203RD_E	WWLS_203RD	WWLS	67	27	0.4			EN
Existing Commercial - WWLS_203RD	WWLS_203RD_EC	WWLS_203RD	WWLS	3	7	2.6		Assume 3.0 EDUs/acre	EN
Undeveloped Residential - WWLS_203RD	WWLS_203RD_U	WWLS_203RD	WWLS	704	1794	2.6		Assume 3.0 EDUs/acre	U
Undeveloped Commercial - WWLS_203RD	WWLS_203RD_UC	WWLS_203RD	WWLS	842	2146	2.6		Assume 3.0 EDUs/acre	U
TOTAL WWLS_203RD		WWLS_203RD	WWLS	**0**	**0**		**0**		

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SUBDIVNAME	SUBSUBBASIN	SUB_BASIN	BASIN	ACRES	EDUs	EDUs/acre	Avg. Flow (gpd)	REMARKS	DEVELOPMENT CLASS*
WWLS_216TH (Future 216th Street LS - flow to WWTP via Washington Woods LS)									
Existing Residential - WWLS_216TH	WWLS_216TH_E	WWLS_216TH	WWLS	176	50	0.3			EN
Existing Commercial - WWLS_216TH	WWLS_216TH_EC	WWLS_216TH	WWLS	9	23	2.6		Assume 3.0 EDUs/acre	EN
Undeveloped Residential - WWLS_216TH	WWLS_216TH_U	WWLS_216TH	WWLS	253	644	2.6		Assume 3.0 EDUs/acre	U
Undeveloped Commercial - WWWL_216TH	WWLS_216TH_UC	WWLS_216TH	WWLS	177	450	2.6		Assume 3.0 EDUs/acre	U
Municipal	WWLS_216TH_M	WWLS_216TH	WWLS	42	108	2.6		Assume 3.0 EDUs/acre	EN/U
TOTAL WWLS_216TH		WWLS_216TH	WWLS	**0**	**0**		**0**		
TOTAL WWLS (Washington Woods LS)			WWLS	**21**	**33**		**11,000**		
WEST_1									
Church - WEST_1	WEST_1_CHURCH	WEST_1	WEST	3	8	2.6		Assume 3.0 EDUs/acre	EN
Existing Residential - WEST_1	WEST_1_E	WEST_1	WEST	174	117	0.7			EN
Undeveloped Residential - WEST_1	WEST_1_U	WEST_1	WEST	1087	2772	2.6		Assume 3.0 EDUs/acre	U
TOTAL WEST_1		WEST_1	WEST	**0**	**0**		**0**		
WEST_2									
Existing Residential - WEST_2	WEST_2_E	WEST_2	WEST	7	3	0.4			EN
Undeveloped Residential - WEST_2	WEST_2_U	WEST_2	WEST	431	1100	2.6		Assume 3.0 EDUs/acre	U
TOTAL WEST_2		WEST_2	WEST	**0**	**0**		**0**		
WEST_3									
Existing Residential - WEST_3	WEST_3_E	WEST_3	WEST	6	2	0.3			EN
Existing Commercial - WEST_3	WEST_3_EC	WEST_3	WEST	2	6	2.6		Assume 3.0 EDUs/acre	EN
Undeveloped Residential - WEST_3	WEST_3_U	WEST_3	WEST	231	588	2.6		Assume 3.0 EDUs/acre	U
TOTAL WEST_3		WEST_3	WEST	**0**	**0**		**0**		
WEST_4									
Church - WEST_4	WEST_4_CHURCH	WEST_4	WEST	1	1	2.6		Assume 3.0 EDUs/acre	EN
Existing Residential - WEST_4	WEST_4_E	WEST_4	WEST	47	18	0.4			EN
Undeveloped Residential - WEST_4	WEST_4_U	WEST_4	WEST	658	1678	2.6		Assume 3.0 EDUs/acre	U
TOTAL WEST_4		WEST_4	WEST	**0**	**0**		**0**		
WEST_5									
Existing Residential - WEST_5	WEST_5_E	WEST_5	WEST	17	6	0.4			EN
Undeveloped Residential - WEST_5	WEST_5_U	WEST_5	WEST	487	1243	2.6		Assume 3.0 EDUs/acre	U
TOTAL WEST_5		WEST_5	WEST	**0**	**0**		**0**		
WEST_6									
Existing Residential - WEST_6	WEST_6_E	WEST_6	WEST	91	30	0.3			EN
Existing Commercial - WEST_6	WEST_6_EC	WEST_6	WEST	18	45	2.6		Assume 3.0 EDUs/acre	EN
Undeveloped Residential - WEST_6	WEST_6_U	WEST_6	WEST	538	1373	2.6		Assume 3.0 EDUs/acre	U
TOTAL WEST_6		WEST_6	WEST	**0**	**0**		**0**		
WEST_7									
Church - WEST_7	WEST_7_CHURCH	WEST_7	WEST	1	2	2.6		Assume 3.0 EDUs/acre	EN
Existing Residential - WEST_7	WEST_7_E	WEST_7	WEST	41	3	0.1			EN
Undeveloped Residential - WEST_7	WEST_7_U	WEST_7	WEST	309	787	2.6		Assume 3.0 EDUs/acre	U
TOTAL WEST_7		WEST_7	WEST	**0**	**0**		**0**		
WEST_8									
Church - WEST_8	WEST_8_CHURCH	WEST_8	WEST	13	33	2.6		Assume 3.0 EDUs/acre	EN
Existing Residential - WEST_8	WEST_8_E	WEST_8	WEST	14	6	0.4			EN
Undeveloped Residential - WEST_8	WEST_8_U	WEST_8	WEST	243	620	2.6		Assume 3.0 EDUs/acre	U
TOTAL WEST_8		WEST_8	WEST	**0**	**0**		**0**		
WEST_9									
Existing Residential - WEST_9	WEST_9_E	WEST_9	WEST	17	8	0.5			EN
Undeveloped Residential - WEST_9	WEST_9_U	WEST_9	WEST	483	1232	2.6		Assume 3.0 EDUs/acre	U
TOTAL WEST_9		WEST_9	WEST	**0**	**0**		**0**		
WEST_10									
Existing Residential - WEST_10	WEST_10_E	WEST_10	WEST	22	8	0.4			EN
Undeveloped Residential - WEST_10	WEST_10_U	WEST_10	WEST	361	920	2.6		Assume 3.0 EDUs/acre	U
TOTAL WEST_10		WEST_10	WEST	**0**	**0**		**0**		
WEST_11									
Existing Residential - WEST_11	WEST_11_EC	WEST_11	WEST	52	5	0.1			EN
Existing Commercial - WEST_11	WEST_11_EC	WEST_11	WEST	15	39	2.6		Assume 3.0 EDUs/acre	EN
Undeveloped Residential - WEST_11	WEST_11_U	WEST_11	WEST	201	513	2.6		Assume 3.0 EDUs/acre	U
TOTAL WEST_11		WEST_11	WEST	**0**	**0**		**0**		
WEST_12									
Existing Residential - WEST_12	WEST_12_E	WEST_12	WEST	45	17	0.4			EN
Existing Commercial - WEST_12	WEST_12_EC	WEST_12	WEST	35	89	2.6		Assume 3.0 EDUs/acre	EN
Undeveloped Residential - WEST_12	WEST_12_U	WEST_12	WEST	1289	3286	2.6		Assume 3.0 EDUs/acre	U
Undeveloped Commercial - WEST_12	WEST_12_UC	WEST_12	WEST	9	24	2.6		Assume 3.0 EDUs/acre	U
TOTAL WEST_12		WEST_12	WEST	**0**	**0**		**0**		
WEST_13									
Existing Residential - WEST_13	WEST_13_EC	WEST_13	WEST	180	141	0.8			EN
Existing Commercial - WEST_13	WEST_13_EC	WEST_13	WEST	11	28	2.6		Assume 3.0 EDUs/acre	EN
Undeveloped Residential - WEST_13	WEST_13_U	WEST_13	WEST	1504	3835	2.6		Assume 3.0 EDUs/acre	U
TOTAL WEST_13		WEST_13	WEST	**0**	**0**		**0**		
TOTAL_WEST (Westside Interceptor)			WEST	**0**	**0**		**0**		

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SUBDIVNAME	SUBSUBBASIN	SUB_BASIN	BASIN	ACRES	EDUs	EDUs/acre	Avg. Flow (gpd)	REMARKS	DEVELOPMENT CLASS*
NW_1									
Existing Residential - NW_1	NW_1_E	NW_1	NW	28	9	0.3			EN
Undeveloped Residential - NW_1	NW_1_U	NW_1	NW	1180	1505	1.3		Assume 1.5 EDUs/acre	U
Undeveloped Commercial - NW_1	NE_1_UC	NW_1	NW	41	106	2.6		Assume 3 EDUs/acre	U
TOTAL NW_1		NW_1	NW	**0**	**0**		**0**		
NW_2									
Existing Residential - NW_2	NW_2_E	NW_2	NW	9	3	0.3			EN
Undeveloped Residential - NW_2	NW_2_U	NW_2	NW	389	496	1.3		Assume 1.5 EDUs/acre	U
TOTAL NW_2		NW_2	NW	**0**	**0**		**0**		
NW_3									
Existing Residential - NW_3	NW_3_E	NW_3	NW	17	5	0.3			EN
Undeveloped Residential - NW_3	NW_3_U	NW_3	NW	358	457	1.3		Assume 1.5 EDUs/acre	U
TOTAL NW_3		NW_3	NW	**0**	**0**		**0**		
NW_4									
Existing Residential - NW_4	NW_4_E	NW_4	NW	56	11	0.2			EN
Undeveloped Residential - NW_4	NW_4_U	NW_4	NW	325	414	1.3		Assume 1.5 EDUs/acre	U
TOTAL NW_4		NW_4	NW	**0**	**0**		**0**		
NW_5									
Existing Residential - NW_5	NW_5_E	NW_5	NW	39	14	0.4			EN
Undeveloped Residential - NW_5	NW_5_U	NW_5	NW	347	443	1.3		Assume 1.5 EDUs/acre	U
TOTAL NW_5		NW_5	NW	**0**	**0**		**0**		
NW_6									
Existing Residential - NW_6	NW_6_E	NW_6	NW	37	10	0.3			EN
Undeveloped Residential - NW_6	NW_6_U	NW_6	NW	689	878	1.3		Assume 1.5 EDUs/acre	U
TOTAL NW_6		NW_6	NW	**0**	**0**		**0**		
NW_7									
Existing Residential - NW_7	NW_7_E	NW_7	NW	51	14	0.3			EN
Undeveloped Residential - NW_7	NW_7_U	NW_7	NW	332	424	1.3		Assume 1.5 EDUs/acre	U
TOTAL NW_7		NW_7	NW	**0**	**0**		**0**		
NW_8									
Existing Residential - NW_8	NW_8_E	NW_8	NW	29	9	0.3			EN
Undeveloped Residential - NW_8	NW_8_U	NW_8	NW	272	577	2.1		Assume 2.5 EDUs/acre	U
TOTAL NW_8		NW_8	NW	**0**	**0**		**0**		
NW_9									
Existing Residential - NW_9	NW_9_E	NW_9	NW	197	115	0.6			EN
Undeveloped Residential - NW_9	NW_9_U	NW_9	NW	685	1455	2.1		Assume 2.5 EDUs/acre	U
TOTAL NW_9		NW_9	NW	**0**	**0**		**0**		
NW_10									
Existing Residential - NW_10	NW_10_E	NW_10	NW	48	32	0.7			EN
Undeveloped Residential - NW_10	NW_10_U	NW_10	NW	665	1413	2.1		Assume 2.5 EDUs/acre	U
TOTAL NW_10		NW_10	NW	**0**	**0**		**0**		
NW_11									
Existing Residential - NW_11	NW_11_E	NW_11	NW	62	14	0.2			EN
Undeveloped Residential - NW_11	NW_11_U	NW_11	NW	150	318	2.1		Assume 2.5 EDUs/acre	U
TOTAL NW_11		NW_11	NW	**0**	**0**		**0**		
NW_12									
Existing Residential - NW_12	NW_12_E	NW_12	NW	26	6	0.2			EN
Undeveloped Residential - NW_12	NW_12_U	NW_12	NW	103	218	2.1		Assume 2.5 EDUs/acre	U
TOTAL NW_12		NW_12	NW	**0**	**0**		**0**		
TOTAL NW (Northwest Interceptor)			NW	**0**	**0**		**0**		
SW_1									
Existing Residential - SW_1	SW_1_E	SW_1	SW	17	4	0.2			EN
Undeveloped Residential - SW_1	SW_1_U	SW_1	SW	77	163	2.1		Assume 2.5 EDUs/acre	U
TOTAL SW_1		SW_1	SW	**0**	**0**		**0**		
SW_2									
Existing Residential - SW_2	SW_2_E	SW_2	SW	24	9	0.4			EN
Undeveloped Residential - SW_2	SW_2_U	SW_2	SW	151	321	2.1		Assume 2.5 EDUs/acre	U
TOTAL SW_2		SW_2	SW	**0**	**0**		**0**		
SW_3									
Existing Residential - SW_3	SW_3_E	SW_3	SW	150	34	0.2			EN
Undeveloped Residential - SW_3	SW_3_U	SW_3	SW	442	940	2.1		Assume 2.5 EDUs/acre	U
TOTAL SW_3		SW_3	SW	**0**	**0**		**0**		
SW_4									
Existing Residential - SW_4	SW_4_E	SW_4	SW	0	1	2.1			EN
Undeveloped Residential - SW_4	SW_4_U	SW_4	SW	129	275	2.1		Assume 2.5 EDUs/acre	U
TOTAL SW_4		SW_4	SW	**0**	**0**		**0**		
SW_5									
Existing Residential - SW_5	SW_5_E	SW_5	SW	61	15	0.2			EN
TOTAL SW_5		SW_5	SW	**0**	**0**		**0**		

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SUBDIVNAME	SUBSUBBASIN	SUB_BASIN	BASIN	ACRES	EDUs	EDUs/acre	Avg. Flow (gpd)	REMARKS	DEVELOPMENT CLASS*
SW_6									
Existing Residential - SW_6	SW_6_E	SW_6	SW	258	39	0.2			EN
Undeveloped Residential - SW_6	SW_6_U	SW_6	SW	1	1	2.1		Assume 2.5 EDUs/acre	U
TOTAL SW_6		SW_6	SW	**0**	**0**		**0**		
SW_7									
Existing Residential - SW_7	SW_7_E	SW_7	SW	98	10	0.1			EN
TOTAL SW_7		SW_7	SW	**0**	**0**		**0**		
SW_8									
Existing Residential - SW_8	SW_8_E	SW_8	SW	190	13	0.1			EN
Undeveloped Residential - SW_8	SW_8_U	SW_8	SW	196	417	2.1		Assume 2.5 EDUs/acre	U
TOTAL SW_8		SW_8	SW	**0**	**0**		**0**		
TOTAL SW (Southwest Interceptor - Castner Farms LS)			SW	**0**	**0**		**0**		

* Development Class: D = development; A = assumed development; U = undeveloped; ES = existing sewered; EN = existing non-sewered

Appendix C
Current Sub-Basins
Westfield Wastewater Master Plan
Town of Westfield, Indiana

SUB_BASIN	BASIN	ACRES	EDUS	EDUS_ACRES	AVG_FL_GPD	P_FACTO	PEAK_FL_MGD	LS_CAP_MGD	SEWER_SIZE	SEWER_CAP_MGD	AVAIL_CAP_MGD	AVAIL_EDUS	REMARKS
1_Gray_A	1_Gray	150	594	4.0	185,000	3.6	0.67		12.00	1.08	0.41	368	
1_Gray_B	1_Gray	296	582	2.0	181,000	3.6	0.66		8.00	0.49	-0.17	-147	
Setters Run LS		446	1176	2.6	366000	3.4	1.23	1.62			0.39	371	
2_Brook_A	2_Brook	64	78	1.2	25,000	4.1	0.10		8.00	0.49	0.39	304	
2_Brook_B	2_Brook	0	0	#DIV/0!	0	4.5	0.00		8.00	0.49	0.49	351	
2_Brook_C	2_Brook	523	1094	2.1	340,000	3.4	1.15		15.00	1.62	0.47	442	
Brookside LS		587	1172	2.0	365000	3.4	1.23	0.79			-0.44	-421	
3_Spring	3_Spring	309	411	1.3	128,000	3.7	0.48		12.00	1.08	0.60	522	
4_Silver	4_Silver	274	629	2.3	196,000	3.6	0.70		8.00	0.49	-0.21	-192	
5_Cool	5_Cool	115	257	2.2	80,000	3.9	0.31	0.17			-0.14	-120	
6_OakMain	6_OakMain	0	0	#DIV/0!	0	4.5	0.00		8.00	0.49	0.49	351	
7_OakPark	7_OakPark	75	77	1.0	24,000	4.1	0.10		8.00	0.49	0.39	306	
8_OakWoods	8_OakWoods	37	14	0.4	5,000	4.3	0.02		8.00	0.49	0.47	350	
9_Oak161	9_Oak161	0	0	#DIV/0!	0	4.5	0.00		8.00	0.49	0.49	351	
10_OakMan	10_OakMan	194	290	1.5	90,000	3.8	0.34		8.00	0.49	0.15	122	
Kroger	Kroger	38	64	1.7	20,000	4.1	0.08		8.00	0.49	0.41	317	
II_1	II	119	372	3.1	116,000	3.8	0.44		8.00	0.49	0.05	46	
II_2	II	79	215	2.7	67,000	3.9	0.26		8.00	0.49	0.23	189	
II_3	II	39	85	2.2	27,000	4.1	0.11		8.00	0.49	0.38	299	
II_4	II	229	485	2.1	151,000	3.7	0.56		12.00	1.08	0.52	460	
II_5	II	100	310	3.1	96,000	3.8	0.37		8.00	0.49	0.12	105	
II_6	II	367	511	1.4	159,000	3.7	0.58		10.00	0.75	0.17	148	
II_7	II	89	87	1.0	28,000	4.1	0.11		8.00	0.49	0.38	296	
II_8	II	159	142	0.9	44,000	4.0	0.18		8.00	0.49	0.31	253	
II_10	II	16	66	4.0	21,000	4.1	0.09		8.00	0.49	0.40	314	
II_11	II	7	3	0.4	1,000	4.4	0.00		8.00	0.49	0.49	355	
II_12	II	0	0	#DIV/0!	0	4.5	0.00		8.00	10.49	10.49	7520	
Oak Rd LS		547	1057	1.9	327782	3.4	1.58	1.60			0.02	23	
18-inch Cool Cr		1548	2722	1.8	29000	4.1	2.51		18.00	2.80	0.29	230	slope = 0.17%
21-inch Cool Cr		1663	2979	1.8	109000	3.8	2.80		21.00	3.40	0.60	511	slope = 0.11%
VMLS_1	VMLS	188	252	1.3	79,000	3.9	0.31		10.00	0.75	0.44	371	
VMLS_2	VMLS	104	292	2.8	91,000	3.8	0.35		10.00	0.75	0.40	339	
VMLS_3	VMLS	531	1002	1.9	312000	3.4	1.07		15.00	1.62	0.55	518	
VMLS_4	VMLS	642	1287	2.0	399,000	3.3	1.33		15.00	1.62	0.29	280	
VMLS_4+1_Gra	VMLS	1088	2463	2.3	765,000	3.1	2.35		21.00	3.24	0.89	938	
VMLS_5	VMLS	153	422	2.8	131,000	3.7	0.49	1.41			0.92	800	Southpark LS (980 gpm capacity)
VMLS_4+_5+1_Gray		1241	2884	2.3	896000	3.0	2.69		21.00	3.97	1.28	1376	slope = 0.15% instead of 0.10%
Viking Meadows LS		635	1294	2.0	400991	3.3	1.34	1.08			-0.26	-248	Viking Meadows LS - initial capacity = 750
156TH_MLS	156TH	721	1779	2.5	662000	3.1	2.07	1.80			-0.27	-280	
156TH_MAIN	156TH	129	328	2.6	1524000	2.8	2.14		30.00	6.40	4.26	4963	
156th_main+VMLS+MLS		1485	3400	2.3	1,524,000	2.8	7.10		36.00	11.18	4.08	4745	slope = 0.067% instead of 0.046%
JED_181ST	JED	47	157	3.3	49000	4.0	0.19	0.23			0.04	28	
JED_1	JED	58	20	0.3	7,000	4.3	0.89		12.00	1.08	0.19	143	
JED_2	JED	223	654	2.9	203,000	3.6	1.61		15.00	1.62	0.01	9	
JED_3	JED	281	857	3.0	266,000	3.3	2.41		18.00	2.36	-0.05	-53	
JED_4	JED	600	1834	3.1	569,000	2.9	3.93		24.00	4.15	0.22	244	
WWLS_216TH	WWLS	0	0	#DIV/0!	0	4.5	0.00	1.35			1.35	968	
WWLS_203RD	WWLS	0	0	#DIV/0!	0	4.5	0.00	4.50			4.50	3226	
WWLS_MAIN_T	WWLS	51	22	0.4	7000	4.3	0.03		15.00	1.62	1.59	1198	
Washington Woods sewer 1		58	33	0.6	10667	4.2	0.05		30.00	6.40	6.35	4840	
WWLS_196TH	WWLS	0	0	#DIV/0!	0	4.5	0.00	4.10			4.10	2939	
Washington Woods sewer 2		65	44	0.7	14333	4.2	0.06		36.00	9.66	9.60	7378	slope = 0.05% instead of 0.046%
WWLS_MAIN_A	WWLS	352	533	1.5	165230	3.6	0.60	1.18			0.58	510	
WWLS_MAIN	WWLS	372	566	1.5	175460	3.6	0.64		36.00	10.75	10.11	8989	slope = 0.062% instead of 0.046%
WWLS_CCS	WWLS	102	101	1.0	32000	3.6	0.65		12.00	1.10	0.45	399	

Appendix C
Current Sub-Basins
Westfield Wastewater Master Plan
Town of Westfield, Indiana

SUB_BASIN	BASIN	ACRES	EDUS	EDUS_ACRES	AVG_FL_GPD	P_FACTO	PEAK_FL_MGD	LS_CAP_MGD	SEWER_SIZE	SEWER_CAP_MGD	AVAIL_CAP_MGD	AVAIL_EDUS	REMARKS
WWLS_CCS_SA	WWLS	107	478	4.5	148180	3.7	0.55	0.59			0.04	39	
Washington Woods LS		475	667	1.4	207460	3.6	0.74	0.63			-0.11	-101	
WEST_1	WEST	0	0	#DIV/0!	0	4.5	0.00	2.70			2.70	1935	
WEST_2	WEST	0	0	#DIV/0!	0	4.5	0.00		15.00	1.62	1.62	1161	
WEST_3	WEST	0	0	#DIV/0!	0	4.5	0.00		24.00	4.14	4.14	2968	
WEST_4	WEST	0	0	#DIV/0!	0	4.5	0.00		15.00	1.62	1.62	1161	
WEST_1+_2+_3+_4		0	0	#DIV/0!	0	4.5	0.00		30.00	6.40	6.40	4588	
WEST_5	WEST	0	0	#DIV/0!	0	4.5	0.00		15.00	1.62	1.62	1161	
WEST_1+_2+_3+_4+_5+_10		0	0	#DIV/0!	0	4.5	0.00		30.00	6.67	6.67	4781	slope = 0.063% instead of 0.058%
WEST_1 - _5+1/2*_7+_10+_11		0	0	#DIV/0!	0	4.5	0.00		36.00	9.26	9.26	6638	
WEST_6	WEST	0	0	#DIV/0!	0	4.5	0.00		15.00	1.62	1.62	1161	
WEST_7	WEST	0	0	#DIV/0!	0	4.5	0.00		36.00	9.26	9.26	6638	
WEST_8	WEST	0	0	#DIV/0!	0	4.5	0.00		10.00	0.75	0.75	538	
WEST_1 - _8 + _10 & _11		0	0	#DIV/0!	0	4.5	0.00		36.00	9.26	9.26	6638	
WEST_9	WEST	0	0	#DIV/0!	0	4.5	0.00		15.00	1.62	1.62	1161	
WEST_10	WEST	0	0	#DIV/0!	0	4.5	0.00		30.00	6.40	6.40	4588	
WEST_11	WEST	0	0	#DIV/0!	0	4.5	0.00		10.00	0.75	0.75	538	
WEST_12	WEST	0	0	#DIV/0!	0	4.5	0.00		42.00	12.50	12.50	8961	
WEST_1- _8 + _10- _12+WWLS		0	0	#DIV/0!	0	4.5	0.00		48.00	24.60	24.60	17634	
WEST_13	WEST	0	0	#DIV/0!	0	4.5	0.00		54.00	31.20	31.20	22366	
NW_1	NW	0	0	#DIV/0!	0	4.5	0.00		15.00	1.62	1.62	1161	
NW_2	NW	0	0	#DIV/0!	0	4.5	0.00		10.00	0.75	0.75	538	
NW_2+NW_4		0	0	#DIV/0!	0	4.5	0.00		12.00	1.08	1.08	774	
NW_3	NW	0	0	#DIV/0!	0	4.5	0.00		10.00	0.75	0.75	538	
NW_4	NW	0	0	#DIV/0!	0	4.5	0.00		8.00	0.49	0.49	351	
NW_5	NW	0	0	#DIV/0!	0	4.5	0.00		10.00	0.75	0.75	538	
NW_2-NW_5+1/2 NW_6		0	0	#DIV/0!	0	4.5	0.00		18.00	2.36	2.36	1692	
NW_6	NW	0	0	#DIV/0!	0	4.5	0.00		21.00	3.24	3.24	2323	
NW_7	NW	0	0	#DIV/0!	0	4.5	0.00		10.00	0.75	0.75	538	
NW LS		0	0	#DIV/0!	0	4.5	0.00	4.20			4.20	3011	Lift Station
NW_1-NW_7		0	0	#DIV/0!	0	4.5	0.00		24.00	4.14	4.14	2968	Interceptor
NW_8	NW	0	0	#DIV/0!	0	4.5	0.00		10.00	0.75	0.75	538	
NW_1-NW_8+1/2 NW_9		0	0	#DIV/0!	0	4.5	0.00		27.00	5.19	5.19	3720	
NW_1-NW_9		0	0	#DIV/0!	0	4.5	0.00		30.00	6.40	6.40	4588	
NW_10	NW	0	0	#DIV/0!	0	4.5	0.00		15.00	1.62	1.62	1161	
NW_1-NW_10		0	0	#DIV/0!	0	4.5	0.00		30.00	6.61	6.61	4738	slope = 0.062% instead of 0.058%
NW_11	NW	0	0	#DIV/0!	0	4.5	0.00		8.00	0.49	0.49	351	
NW_1-NW_12		0	0	#DIV/0!	0	4.5	0.00		36.00	9.26	9.26	6638	
NW+WEST		0	0	#DIV/0!	0	5.0	0.00		60.00	37.70	37.70	24323	
SW_1	SW	0	0	#DIV/0!	0	4.5	0.00		8.00	0.49	0.49	351	
SW_2	SW	0	0	#DIV/0!	0	4.5	0.00		8.00	0.49	0.49	351	
SW_1 + SW_2		0	0	#DIV/0!	0	4.5	0.00		10.00	0.75	0.75	538	Short Interceptor on south end of SW_1
SW_3	SW	0	0	#DIV/0!	0	4.5	0.00		12.00	1.08	1.08	774	Interceptor
SW_1- _3		0	0	#DIV/0!	0	4.5	0.00		15.00	1.62	1.62	1161	
SW_4	SW	0	0	#DIV/0!	0	4.5	0.00		8.00	0.49	0.49	351	
SW_5	SW	0	0	#DIV/0!	0	4.5	0.00		10.00	0.75	0.75	538	
SW_6	SW	0	0	#DIV/0!	0	4.5	0.00		8.00	0.49	0.49	351	
SW_7	SW	0	0	#DIV/0!	0	4.5	0.00		8.00	0.49	0.49	351	
SW_8	SW	0	0	#DIV/0!	0	4.5	0.00		10.00	0.75	0.75	538	Test
SW LS		0	0	#DIV/0!	0	4.5	0.00	2.20			2.20	1577	Lift Station

Note: Sewer capacities are based on minimum slope to maintain a velocity of 2 ft/s

Appendix D
Ultimate EDU Assignments
Westfield Wastewater Master Plan
Town of Westfield, Indiana

SUBDIVNAME	SUBSUBBASIN	SUB_BASIN	BASIN	ACRES	EDUs	EDUs/acre	Avg. Flow (gpd)	REMARKS	DEVELOPMENT CLASS*
1_Gray_A (Setters Run LS will be re-routed to Viking Meadows LS from Carmel)									
Setters Place	1_Gray_A_SP	1_Gray_A	1_Gray	13	39	3.1			D
Setters Run	1_Gray_A_SR	1_Gray_A	1_Gray	62	178	2.9			D
Bridgewater Club - Commercial	1_Gray_A_BC-C	1_Gray_A	1_Gray	37	137	3.7		From Cripe spreadsheet (Sections M-2 & M-3)	A
Bridgewater Club - Residential	1_Gray_A_BC_R	1_Gray_A	1_Gray	38	240	6.4		From Cripe spreadsheet (Section K-2)	A
Existing Residential - 1_Gray_A	1_Gray_A_E	1_Gray_A	1_Gray	3	2	0.8			EN
Power Station	1_Gray_A_PS	1_Gray_A	1_Gray	13	0	0.0			EN
Existing Commercial - 1_Gray_A	1_Gray_A_EC	1_Gray_A	1_Gray	7	17	2.6			EN
Undeveloped Residential - 1_Gray_A	1_Gray_A_U	1_Gray_A	1_Gray	35	88	2.6			U
TOTAL 1_Gray_A		**1_Gray_A**	**1_Gray**	**206**	**701**		**218,000**		
1_Gray_B (Setters Run LS will be re-routed to Viking Meadows LS from Carmel)									
Bridgewater Club	1_Gray_B_BC	1_Gray_B	1_Gray	122	393	3.2		Sections G-1, G-2, G3-5, E (partial), I-1, I-2, J, & L	D
Bridgewater Club (Future)	1_Gray_B_BC_F	1_Gray_B	1_Gray	174	189	1.1		Based on spreadsheet from Cripe - Sections F, G-6, K-1 & M-1	A
TOTAL 1_Gray_B		**1_Gray_B**	**1_Gray**	**296**	**582**		**181,000**		
TOTAL 1_Gray (Setters Run LS)			**1_Gray**	**502**	**1283**		**399,000**		
2_Brook_A (Bridgewater portion to Brookside LS - flow to Carmel)									
Bridgewater Club	2_Brook_A_BC	2_Brook_A	2_Brook	64	78	1.2		Sections D-1, D-2, E (partial), & clubhouse (45 EDUs)	D
TOTAL 2_Brook_A		**2_Brook_A**	**2_Brook**	**64**	**78**		**25,000**		
2_Brook_B (Existing Residential currently unsewered - potentially to Brookside LS)									
Existing Residential - 2_Brook_B	2_Brook_B_E	2_Brook_B	2_Brook	48	12	0.3		EXISTING RESIDENTIAL	EN
TOTAL 2_Brook_B		**2_Brook_B**	**2_Brook**	**48**	**12**		**4,000**		
2_Brook_C (Brookside LS - flow to Carmel)									
Brookside	2_Brook_C_BS	2_Brook_C	2_Brook	70	95	1.4		Brookside 1 & 2	D
Brookside - Future	2_Brook_C_BS_F	2_Brook_C	2_Brook	32	100	3.1		Brookside 3 & 4	A
Carey Glen	2_Brook_C_CG	2_Brook_C	2_Brook	15	25	1.7			D
Crest View	2_Brook_C_CV	2_Brook_C	2_Brook	109	240	2.2			D
Summit Lakes	2_Brook_C_SL	2_Brook_C	2_Brook	18	49	2.7			D
Summit Lakes - Future	2_Brook_C_SL_F	2_Brook_C	2_Brook	45	86	1.9			A
Woodshire	2_Brook_C_WS	2_Brook_C	2_Brook	73	29	0.4			EN
Oak Manor	2_Brook_C_OM	2_Brook_C	2_Brook	117	475	4.1		From Oak Manor PUD	D
Carey Ridge Elementary School	2_Brook_C_School	2_Brook_C	2_Brook	31	5	0.2		Based on water usage (from Peg)	ES
Existing Residential/Radiant Christian Life Church/Century 21 - 2_Brook_C	2_Brook_C_E	2_Brook_C	2_Brook	85	19	0.2		EXISTING RESIDENTIAL/Church/Century 21	ES
Undeveloped Residential - 2_Brook_C	2_Brook_C_U	2_Brook_C	2_Brook	239	102	0.4		Assume 0.5 EDUs/acre	U
Undeveloped Employment Area - 2_Brook_C	2_Brook_C_UE	2_Brook_C	2_Brook	69	30	0.4		Assume 0.5 EDUs/acre	U
Undeveloped RR right of way - 2_Brook_C	2_Brook_C_U_RR	2_Brook_C	2_Brook	6	0	0.0		Assume 0.0 EDUs/acre	U
TOTAL 2_Brook_C		**2_Brook_C**	**2_Brook**	**911**	**1254**		**389,000**		
TOTAL 2_Brook (Brookside LS)			**2_Brook**	**1022**	**1345**		**418,000**		
3_Spring (Cool Creek Interceptor - flow to Carmel)									
Brentwood Village	3_Spring_BV	3_Spring	3_Spring	20	38	1.9			D
Bridgewater Club	3_Spring_BC	3_Spring	3_Spring	163	33	0.2		Sections A & B (& golf course)	D
Bridgewater Club - Section C	3_Spring_BC_C	3_Spring	3_Spring	27	55	2.0		Based on spreadsheet from Cripe - Section C	D
Bridlewood	3_Spring_BW	3_Spring	3_Spring	65	137	2.1			D
Spring Meadows	3_Spring_SM	3_Spring	3_Spring	4.7	29	6.2			D
Village Park Estates	3_Spring_VPE	3_Spring	3_Spring	15	83	5.4			D
Existing Residential - 3_Spring	3_Spring_E	3_Spring	3_Spring	82	3	0.0			EN
Municipal/Utility	3_Spring_M	3_Spring	3_Spring	1	0	0.0			EN
Retail/Commercial - 3_Spring	3_Spring_Retail	3_Spring	3_Spring	14	36	2.6		Assume 3.0 EDUs/acre	ES
Undeveloped Residential - 3_Spring	3_Spring_U	3_Spring	3_Spring	108	276	2.6		Assume 3.0 EDUs/acre	U
TOTAL 3_Spring		**3_Spring**	**3_Spring**	**501**	**690**		**214,000**		

Appendix D
Ultimate EDU Assignments
Westfield Wastewater Master Plan
Town of Westfield, Indiana

SUBDIVNAME	SUBSUBBASIN	SUB_BASIN	BASIN	ACRES	EDUs	EDUs/acre	Avg. Flow (gpd)	REMARKS	DEVELOPMENT CLASS*
4_Silver (Cool Creek Interceptor - flow to Carmel)									
Silver Thorne	4_Silver-ST	4_Silver	4_Silver	31	158	5.2			D
Tuttle Grove Apartments	4_Silver_TG	4_Silver	4_Silver	24	143	6.0		Assume 7.0 EDUs/acre	D
Retail/Commercial - 4_Silver	4_Silver_Retail	4_Silver	4_Silver	129	329	2.6		Assume 3.0 EDUs/acre	ES
Park/Open Space - 4_Silver	4_Silver_Park	4_Silver	4_Silver	91	0	0.0		Assume 0.0 EDUs/acre	ES
TOTAL 4_Silver		**4_Silver**	**4_Silver**	**274**	**630**		**196,000**		
5_Cool (Cool Creek Interceptor - flow to Carmel)									
Cool Creek Circle	5_Cool_CCC	5_Cool	5_Cool	21	18	0.8			D
Existing Residential - 5_Cool	5_Cool_E	5_Cool	5_Cool	92	9	0.1			EN
Existing Retail/Commercial - 5_Cool	5_Cool_Retail	5_Cool	5_Cool	2.1	5	2.6		Assume 3.0 EDUs/acre	EN
Future Residential	5_Cool_FR	5_Cool	5_Cool	24	62	2.6		Assume 3.0 EDUs/acre	A
Future Commercial	5_Cool_FC	5_Cool	5_Cool	70	177	2.6		Assume 3.0 EDUs/acre	A
Undeveloped Residential - 5_Cool	5_Cool_U	5_Cool	5_Cool	41	104	2.6		Assume 3.0 EDUs/acre	U
Flood Plain	5_Cool_FP	5_Cool	5_Cool	19	0	0.0		Assume 0.0 EDUs/acre	U
TOTAL 5_Cool		**5_Cool**	**5_Cool**	**269**	**375**		**117,000**		
6_OakMain (Oak Road Interceptor - flow to Carmel)									
Existing Residential - 6_OakMain	6_OakMain_E	6_OakMain	6_OakMain	171	16	0.1			EN
Undeveloped Residential - 6_OakMain	6_OakMain_U	6_OakMain	6_OakMain	78	200	2.6		Assume 3.0 EDUs/acre	U
TOTAL 6_OakMain		**6_OakMain**	**6_OakMain**	**249**	**216**		**67,000**		
7_OakPark (Oak Road Interceptor - flow to Carmel)									
Oak Park	7_OakPark_OP	7_OakPark	7_OakPark	57	32	0.6			D
Oak Park - Future	7_OakPark_OP_F	7_OakPark	7_OakPark	18	45	2.6		Assume 3.0 EDUs/acre	A
TOTAL 7_OakPark		**7_OakPark**	**7_OakPark**	**75**	**77**		**24,000**		
8_OakWoods (Oak Road Interceptor - flow to Carmel)									
Oak Woods	8_OakWoods_OW	8_OakWoods	8_OakWoods	37	14	0.4			D
TOTAL 8_OakWoods		**8_OakWoods**	**8_OakWoods**	**37**	**14**		**5,000**		
9_Oak161 (Oak Road Interceptor - flow to Carmel)									
Existing Residential - 9_Oak161	9_Oak161_E	9_Oak161	9_Oak161	2.8	1	0.4			EN
Undeveloped Residential - 9_Oak161	9_Oak161_U	9_Oak161	9_Oak161	34	87	2.6		Assume 3.0 EDUs/acre	U
TOTAL 9_Oak161		**9_Oak161**	**9_Oak161**	**37**	**88**		**28,000**		
10_OakMan (Oak Manor Subdvision to Oak Road LS - flow to Carmel)									
Oak Manor	10_OakMan_OM	10_OakMan	10_OakMan	194	290	1.5		Existing Oak Manor + 225 EDUs from PUD	D
Existing Residential - 10_OakMan	10_OakMan_E	10_OakMan	10_OakMan	1.4	1	0.7			EN
TOTAL 10_OakMan		**10_OakMan**	**10_OakMan**	**196**	**291**		**91,000**		
Kroger (new Kroger to Oak Road LS - flow to Carmel)									
Retail/Commercial	Kroger_Retail	Kroger	Kroger	38	64	1.7		Assume 2.0 EDUs/acre	A
TOTAL Kroger		**Kroger**	**Kroger**	**38**	**64**		**20,000**		
II_1 (Downtown area to Oak Road LS - flow to Carmel)									
Broadview	II_1_BR	II_1	II	8.9	20	2.2			ES
Gifford Addition	II_1_GA	II_1	II	3.0	10	3.4			ES
Harvest Meadows	II_1_HM	II_1	II	24	113	4.7			ES
North Union Heights	II_1_NUH	II_1	II	4.8	21	4.4			ES
Pine Hollow	II_1_PH	II_1	II	2.4	8	3.4			ES
Roberts Rolling Acre	II_1_RRA	II_1	II	6.5	18	2.8			ES
Silver Lakes	II_1_SL	II_1	II	19	48	2.5			ES
Sleepy Hollow	II_1_SH	II_1	II	8.9	29	3.3			ES
Sycamore	II_1_SY	II_1	II	18	52	2.9			ES
Westfield Green Street	II_1_WG	II_1	II	7.0	18	2.6			ES
Existing Residential - II_1	II_1_E	II_1	II	7.9	19	2.4			ES
Existing Apartments - II_1	II_1_APTS	II_1	II	4.2	5	1.2		Based on water usage (from Peg)	ES
Existing Commercial - II_1	II_1_EC	II_1	II	4.4	11	2.6		Assume 3.0 EDUs/acre	ES
TOTAL II_1		**II_1**	**II**	**119**	**372**		**116,000**		
II_2 (Willow Creek Subdivision to Oak Road LS - flow to Carmel)									
Willow Creek	II_2_WC	II_2	II	48	158	3.3			D
Existing Residential - II_2	II_2_E	II_2	II	5.4	3	0.6			ES
First Baptist Church	II_2_Church	II_2	II	5.4	2	0.4		Based on water usage (from Peg)	ES
Existing Commercial - II_2	II_2_EC	II_2	II	20	52	2.6		Assume 3.0 EDUs/acre	ES
Undeveloped Commercial - II_2	II_2_UC	II_2	II	13	33	2.6		Assume 3.0 EDUs/acre	U
TOTAL II_2		**II_2**	**II**	**92**	**249**		**78,000**		

SUBDIVNAME	SUBSUBBASIN	SUB_BASIN	BASIN	ACRES	EDUs	EDUs/acre	Avg. Flow (gpd)	REMARKS	DEVELOPMENT CLASS*
II_3 (Downtown area to Oak Road LS - flow to Carmel)									
Asa Beals	II_3_AB	II_3	II	3.8	15	3.9			D
John Kerr	II_3_JK	II_3	II	1.3	6	4.6			D
Kenyon Subdivision	II_3_KS	II_3	II	2.9	9	3.1			D
Roberts Rolling Acre	II_3_RRA	II_3	II	5.2	13	2.5			D
Sleepy Hollow	II_3_SH	II_3	II	5.0	15	3.0			D
Westfield Original - Residential	II_3_WO_R	II_3	II	1.9	7	3.6			ES
Westfield Original - Commercial	II_3_WO_C	II_3	II	1.0	3	2.6		Assume 3.0 EDUs/acre	ES
Westfield Original - Apartments	II_3_WO_APTS	II_3	II	0.6	4	6.7		Assume 4 apartments	ES
Existing Residential - II_3	II_3_E	II_3	II	8.3	13	1.6			ES
Christ United Methodist Church	II_3_Church	II_3	II	8.4	1	0.1		Based on water usage (from Peg)	ES
TOTAL II_3		**II_3**	**II**	**39**	**85**		**27,000**		
II_4 (Downtown area to Oak Road LS - flow to Carmel)									
Asa Beals	II_4_AB	II_4	II	1.5	7	4.7			D
Cherry Wood Estates	II_4_CWE	II_4	II	5.7	29	5.1			D
I B Anderson - Residential	II_4_IBA_R	II_4	II	1.6	7	4.3			D
I B Anderson - Commercial	II_4_IBA_C	II_4	II	0.5	1	2.6			D
Mill Stream	II_4_MS	II_4	II	1.4	3	2.1			D
R P Cox	II_4_RPC	II_4	II	2.4	11	4.5			D
Union Bible College/Seminary	II_4_UBC	II_4	II	7	10	1.4		Based on water usage (from Peg)	ES
Sander's	II_4_SA	II_4	II	3.6	12	3.4			D
Southridge	II_4_SR	II_4	II	6.0	33	5.5			D
Timberbrook Run II	II_4_TR	II_4	II	12	39	3.2			D
Watson - Residential	II_4_WA_R	II_4	II	4.3	5	1.2			ES
Watson - Commercial	II_4_WA_C	II_4	II	0.9	2	2.6		Assume 3.0 EDUs/acre	ES
Westfield Original - Residential	II_4_WO_R	II_4	II	7.0	17	2.4			ES
Westfield Original - Commercial	II_4_WO_C	II_4	II	4.3	11	2.6		Assume 3.0 EDUs/acre	ES
Westfield Original - Apartments	II_4_WO_APTS	II_4	II	0.3	4	13.5		Assume 4 apartments	ES
Woodside Estates	II_4_WE	II_4	II	12	15	1.2			D
Hamilton Square Apartments	II_4_HSA	II_4	II	28	23	0.8		Based on water usage (from Peg)	D
Existing Residential - II_4	II_4_E	II_4	II	56	72	1.3			ES
Existing Apartments - II_4	II_4_APTS	II_4	II	0.2	4	21.2		Assume 4 apartments	ES
Existing Commercial - II_4	II_4_EC	II_4	II	59	150	2.6		Assume 3.0 EDUs/acre	ES
Westfield Associates Nursing Home?	II_4_NH	II_4	II	9.1	28	3.1		Based on water usage (from Peg)	ES
Union Friends & Westfield Friends Churches	II_4_Church	II_4	II	6.3	1	0.2		Based on water usage (from Peg)	ES
Westfield Cemetery	II_4_CE	II_4	II	0.8	0	0.0		Assume 0.0 EDUs/acre	EN
Railroad Right-of-Way	II_4_RR	II_4	II	6.1	0	0.0		Assume 0.0 EDUs/acre	EN
Undeveloped Commercial - II_4	II_4_UC	II_4	II	88	225	2.6		Assume 3.0 EDUs/acre	U
TOTAL II_4		**II_4**	**II**	**324**	**709**		**220,000**		
II_5 (Subdivisions to Oak Road LS - flow to Carmel)									
Coverdale	II_5_CD	II_5	II	10	56	5.8			D
Emerald Place	II_5_EP	II_5	II	12	46	3.9			D
Pheasant Run	II_5_PR	II_5	II	17	44	2.5			D
Pines of Westfield	II_5_PW	II_5	II	34	63	1.8			D
Ashley Place Apartments	II_5_APA	II_5	II	16	97	6.0		Assume 7.0 EDUs/acre	D
Existing Residential - II_5	II_5_E	II_5	II	11	4	0.4			ES
TOTAL II_5		**II_5**	**II**	**100**	**310**		**96,000**		
II_6 (Downtown areas to Oak Road LS - flow to Carmel)									
Abel Doans - Residential	II_6_AB_R	II_6	II	5.8	26	4.5			D
Abel Doans - Commercial	II_6_AB_C	II_6	II	10	27	2.6		Assume 3.0 EDUs/acre	D
Mill Stream	II_6_MS	II_6	II	1.3	6	4.6			D
Existing Residential - II_6	II_6_E	II_6	II	32	49	1.5			ES
Existing Commercial - II_6	II_6_EC	II_6	II	317	404	1.3		Assume 1.5 EDUs/acre	ES
Railroad Right-of-Way & Water Tower	II_6_RR	II_6	II	10	0	0.0		Assume 0.0 EDUs/acre	EN
TOTAL II_6		**II_6**	**II**	**377**	**511**		**159,000**		
II_7 (Downtown areas to Oak Road LS - flow to Carmel)									
Newby's First Addition	II_7_NFA	II_7	II	1.5	4	2.7			D
Newby's Westfield Heights	II_7_NWH	II_7	II	19	65	3.5			D
Existing Residential - II_7	II_7_E	II_7	II	2.0	4	2.0			ES
Westfield-Washington Schools	II_7_School	II_7	II	67	14	0.2		Based on water usage (from Peg)	ES
TOTAL II_7		**II_7**	**II**	**89**	**87**		**28,000**		

SUBDIVNAME	SUBSUBBASIN	SUB_BASIN	BASIN	ACRES	EDUs	EDUs/acre	Avg. Flow (gpd)	REMARKS	DEVELOPMENT CLASS*
II_8 (Downtown areas to Oak Road LS - flow to Carmel)									
Asa Beals	II_8_AB	II_8	II	0.8	2	2.7			D
Bowman	II_8_BO	II_8	II	3.0	9	3.0			D
Broadview	II_8_BR	II_8	II	1.6	4	2.5			D
Maple Park	II_8_MP	II_8	II	2.7	6	2.2			D
Wesleyon Church & Church of Christ	II_8_Church	II_8	II	3.4	0	0.1		Based on water usage (from Peg)	ES
Westfield Village Nursing Home	II_8_NH	II_8	II	3.4	26	7.7		Based on water usage (from Peg)	ES
Newby's First Addition	II_8_NFA	II_8	II	1.4	2	1.4			D
Newby's Westfield Heights - Park	II_8_NWH_P	II_8	II	5.9	0	0.0			ES
Westfield Original - Residential	II_8_WO_R	II_8	II	0.9	4	4.4			ES
Westfield Original - Commercial	II_8_WO_C	II_8	II	1.0	3	2.6		Assume 3.0 EDUs/acre	ES
Westifeld Original - Municipal	II_8_WO_M	II_8	II	0.5	1	2.6		Assume 3.0 EDUs/acre	ES
Existing Residential - II_8	II_8_E	II_8	II	17	17	1.0			ES
Existing Commercial - II_8	II_8_EC	II_8	II	41	31	0.8		Assume 3.0 EDUs/acre	ES
Westfield-Washington Schools	II_8_School	II_8	II	75	35	0.5		Based on water usage (from Peg)	ES
Water Tower/Booster Station	II_8_WT	II_8	II	0.2	0	0.0		Assume 0.0 EDUs/acre	ES
Cemetery	II_8_CE	II_8	II	1.3	0	0.0		Assume 0.0 EDUs/acre	ES
Undeveloped Commercial - II_8	II_8_UC	II_8	II	26	67	2.6		Assume 3.0 EDUs/acre	U
TOTAL II_8		**II_8**	**II**	**185**	**209**		**65,000**		
II_10 (Carey Commons Subdivision to Oak Road LS - flow to Carmel)									
Carey Commons	II_10_CC	II_10	II	16	66	4.0			D
TOTAL II_10		**II_10**	**II**	**16**	**66**		**21,000**		
II_11 (Downtown areas to Oak Road LS - flow to Carmel)									
Kellie's Lane	II_11_KL	II_11	II	6.8	3	0.4			D
Existing Residential - II_11	II_11_E	II_11	II	46	10	0.2			EN
Summit Lawn Cemetery	II_11_CE	II_11	II	25	0	0.0		Assume 0.0 EDUs/acre	EN
Undeveloped Residential - II_11	II_11_U	II_11	II	18	47	2.6		Assume 3.0 EDUs/acre	U
TOTAL II_11		**II_11**	**II**	**96**	**60**		**19,000**		
II_12 (Area near WPWD office to Oak Road LS - flow to Carmel)									
Existing Residential - II_12	II_12_E	II_12	II	30	4	0.1			EN
Westfield Public Works Office	II_12_M	II_12	II	36	0	0.0		Assume 0.0 EDUs/acre	EN
TOTAL II_12		**II_12**	**II**	**66**	**4**		**2,000**		
TOTAL II - flow to Carmel			**II**	**1504**	**2662**		**1,009,000**		
VMLS_1 (Viking Meadows Subdivision north of 156th Street - to Viking Meadows LS - flow to WWTP)									
Helios Subdivision	VMLS_1_HS	VMLS_1	VMLS	15	13	0.9			EN
Viking Meadows	VMLS_1_VM	VMLS_1	VMLS	188	252	1.3			A
Existing Residential - VMLS_1	VMLS_1_E	VMLS_1	VMLS	42	13	0.3			E
Undeveloped Residential - VMLS_1	VMLS_1_U	VMLS_1	VMLS	104	266	2.6		Assume 3.0 EDUs/acre	U
Church	VMLS_1_Church	VMLS_1	VMLS	19	60	3.2			EN/U
TOTAL VMLS_1		VMLS_1	VMLS	**368**	**604**		**188,000**		
VMLS_2 (flow to existing Springdale Farms LS - will be rerouted to Viking Meadows LS - flow to WWTP)									
Mulberry Farms	VMLS_2_MF	VMLS_2	VMLS	22	53	2.4			D
Oak Ridge Crossing	VMLS_2_ORC	VMLS_2	VMLS	32	93	2.9			D
Springdale Farms	VMLS_2_SF	VMLS_2	VMLS	33	94	2.8			D
Crossings at Springmill Villages	VMLS_2_CSV	VMLS_2	VMLS	17	52	3.1			D
TOTAL VMLS_2		VMLS_2	VMLS	**104**	**292**		**91,000**		
VMLS_3 (flow to existing Springmill Villages LS + Viking Meadows south of 156th Street - to Viking Meadows LS - flow to WWTP)									
Crossings at Springmill Villages	VMLS_3_CSV	VMLS_3	VMLS	23	68	3.0			D
Meadows at Springmill Villlages	VMLS_3_MSV	VMLS_3	VMLS	42	65	1.5			D
Viking Meadows	VMLS_3_VM	VMLS_3	VMLS	123	74	0.6			A
Westfield Tech Park	VMLS_3_WTP	VMLS_3	VMLS	27	220	8.2		From developer sheet	A
Existing Residential - VMLS_3	VMLS_3_E	VMLS_3	VMLS	12	3	0.2			ES
Church	VMLS_3_CHURCH	VMLS_3	VMLS	15	25	1.6		Assume 25 EDUs	EN
Existing Commercial - VMLS_3	VMLS_3_EC	VMLS_3	VMLS	11	28	2.6		Assume 3.0 EDUs/acre	ES
Undeveloped Residential - VMLS_3	VMLS_3_U	VMLS_3	VMLS	19	47	2.6		Assume 3.0 EDUs/acre	U
TOTAL VMLS_3		VMLS_3	VMLS	**272**	**530**		**165,000**		
VMLS_4 (currently flow goes to Carmel - will go to Viking Meadows LS in future)									
Crossings at Springmill Villages	VMLS_4_CSV	VMLS_4	VMLS	25	82	3.2			D
Meadows at Springmill Villlages	VMLS_4_MSV	VMLS_4	VMLS	20	49	2.4			D
Beacon Point	VMLS_4_BP	VMLS_4	VMLS	45	104	2.3			D
Hills & Dales West	VMLS_4_HDW	VMLS_4	VMLS	25	10	0.4			D
Shadow Lakes	VMLS_4_SL	VMLS_4	VMLS	22	53	2.4			D
Village Farms	VMLS_4_VF	VMLS_4	VMLS	381	759	2.0			D
Westfield Farms	VMLS_4_WF	VMLS_4	VMLS	42	102	2.4			D
Bainbridge	VMLS_4_BB	VMLS_4	VMLS	10	15	1.6			D
Existing Residential - VMLS_4	VMLS_4_E	VMLS_4	VMLS	31	10	0.3			ES
Existing Commercial - VMLS_4	VMLS_4_EC	VMLS_4	VMLS	40	103	2.6		Assume 3.0 EDUs/acre	ES
Undeveloped Residential - VMLS_4	VMLS_4_U	VMLS_4	VMLS	77	196	2.6		Assume 3.0 EDUs/acre	U
TOTAL VMLS_4		VMLS_4	VMLS	**719**	**1483**		**460,000**		

SUBDIVNAME	SUBSUBBASIN	SUB_BASIN	BASIN	ACRES	EDUs	EDUs/acre	Avg. Flow (gpd)	REMARKS	DEVELOPMENT CLASS*
VMLS_5 (currently flow goes to J. Edwards Drain via Southpark LS - will go to Viking Meadows LS in future)									
Ridgewood	VMLS_5_RW	VMLS_5	VMLS	27	35	1.3			EN
Countryside	VMLS_5_CS	VMLS_5	VMLS	47	150	3.2			D
Countryside - Undeveloped	VMLS_5_CS_U	VMLS_5	VMLS	21	53	2.6		Assume 3.0 EDUs/acre	A
Farr Hills	VMLS_5_FH	VMLS_5	VMLS	19	36	1.9			EN
Jack's Lane	VMLS_5_JL	VMLS_5	VMLS	2	2	0.8			EN
Buena Vista	VMLS_5_BU	VMLS_5	VMLS	5	10	1.9			EN
Existing Residential - VMLS_5	VMLS_5_E	VMLS_5	VMLS	18	10	0.5			EN
RR Right of Way/Municipal	VMLS_5_RR	VMLS_5	VMLS	7	0	0.0		Assume 0.0 EDUs/acre	EN
Viking Meadows - Commercial	VMLS_5_VM_C	VMLS_5	VMLS	13	32	2.6		Assume 3.0 EDUs/acre	A
Existing Commercial - VMLS_5	VMLS_5_EC	VMLS_5	VMLS	73	187	2.6		Assume 3.0 EDUs/acre	ES
Future Church (Hebrew Congregation)?	VMLS_5_CHURCH	VMLS_5	VMLS	33	25	0.8		Assume 25 EDUs	U
Undeveloped Residential	VMLS_5_U	VMLS_5	VMLS	54	137	2.6		Assume 3.0 EDUs/acre	U
Undeveloped Commercial	VMLS_5_UC	VMLS_5	VMLS	93	236	2.6		Assume 3.0 EDUs/acre	U
RR Right of Way	VMLS_1_RR	VMLS_5	VMLS	4	0	0.0		Assume 0.0 EDUs/acre	EN
TOTAL VMLS_5		VMLS_5	VMLS	**415**	**912**		**283,000**		
TOTAL_VMLS			VMLS	**1878**	**3821**		**1,187,000**		
156TH_MLS (Merrimac LS - flow to WWTP)									
Mulberry Farms	156TH_MLS_MF	156TH_MLS	156TH	14	26	1.9			D
Crossings at Springmill Villages	156TH_MLS_CSV	156TH_MLS	156TH	23	57	2.5			D
Meadows at Springmill Villlages	156TH_MLS_MSV	156TH_MLS	156TH	11	18	1.7			D
Centennial	156TH_MLS_CEN	156TH_MLS	156TH	366	1107	3.0			D
Crosswind Commons	156TH_MLS_CC	156TH_MLS	156TH	27	63	2.4			D
Merrimac	156TH_MLS_ME	156TH_MLS	156TH	129	293	2.3			D
Landmark on Spring Mill Apts	156TH_MLS_APTS	156TH_MLS	156TH	39	150	3.9		Based on water usage (from Peg)	D
Shamrock Springs Elementary School	156TH_MLS_SCHOOL	156TH_MLS	156TH	56	32	0.6		Based on water usage (from Peg)	ES
Church	156TH_MLS_CHURCH	156TH_MLS	156TH	7	25	3.7		Assume 25 EDUs	A
Existing Residential - 156TH_MLS	156TH_MLS_E	156TH_MLS	156TH	50	8	0.2			ES
Undeveloped Residential	156TH_MLS_U	156TH_MLS	156TH	139	355	2.6			U
TOTAL 156TH_MLS		156TH_MLS	156TH	**861**	**2134**		**662,000**		
156TH_MAIN (Areas to main 156th Street Interceptor - flow to WWTP)									
Bent Creek	156TH_MAIN_BC	156TH_MAIN	156TH	129	328	2.6		Assume 3.0 EDUs/acre - PUD available?	A
Existing Residential - 156TH_MAIN	156TH_MAIN_E	156TH_MAIN	156TH	171	33	0.2			EN
Golf Course	156TH_MAIN_GC	156TH_MAIN	156TH	153	0	0.0		Assume 0.0 EDUs/acre	EN
Municipal/Government	156TH_MAIN_M	156TH_MAIN	156TH	17	0	0.0		Assume 0.0 EDUs/acre	EN
Undeveloped Residential	156TH_MAIN_U	156TH_MAIN	156TH	1785	4552	2.6		Assume 3.0 EDUs/acre	U
TOTAL 156TH_MAIN		156TH_MAIN	156TH	**2255**	**4913**		**1,524,000**		
TOTAL_156TH			156TH	**3115**	**7047**		**2,186,000**		
JED_181ST (181st Street LS - flow to WWTP)									
Trailer Park (From 181st St LS)	JED_181ST_TP	JED_181ST	JED	47	157	3.3		Based on flows at lift station	D
TOTAL JED_181ST		JED_181ST	JED	**47**	**157**		**49,000**		
JED_1 (12-inch J. Edwards Drain Interceptor - flow to WWTP)									
Existing Residential - JED_1	JED_1_E	JED_1	JED	23	12	0.5			ES
Medical Clinic	JED_1_MED	JED_1	JED	10	0.3	0.0		Based on water usage (from Peg)	D
Alpha Tau Industrial Park	JED_1_AT	JED_1	JED	20	3	0.2		Based on water usage (from Peg)	D
Existing Employment Area	JED_1_EM	JED_1	JED	5	4	0.9		Assume 1.0 EDUs/acre	ES
Undeveloped Employment Area - JED_1	JED_1_EM_U	JED_1	JED	151	193	1.3		Assume 1.5 EDUs/acre	U
TOTAL JED_1		JED_1	JED	**209**	**213**		**67,000**		
JED_2 (15-inch J. Edwards Drain Interceptor - flow to WWTP)									
Pine Ridge/Quail Ridge	JED_2_PRQ	JED_2	JED	86	329	3.8			D
Countryside	JED_2_CS	JED_2	JED	88	317	3.6			D
Undeveloped Residential - JED_2	JED_2_U	JED_2	JED	17	43	2.6		Assume 3.0 EDUs/acre	U
Municipal/Government	JED_2_M	JED_2	JED	19	5	0.2		Based on water usage (from Peg)	D
Tiller Industrial Park	JED_2_TIP	JED_2	JED	30	4	0.1		Based on water usage (from Peg)	D
Undeveloped Employment Area - JED_2	JED_2_EM_U	JED_2	JED	47	60	1.3		Assume 1.5 EDUs/acre	U
TOTAL JED_2		JED_2	JED	**287**	**757**		**235,000**		
JED_3 (18-inch J. Edwards Drain Interceptor - flow to WWTP)									
Mapleton at Countryside	JED_3_MCS	JED_3	JED	21	170	8.2			D
Countryside	JED_3_CS	JED_3	JED	229	654	2.9			D
Villas at Oak Ridge Condominiums	JED_3_VOR	JED_3	JED	10	24	2.5			D
Existing Residential - JED_3	JED_3_E	JED_3	JED	29	6	0.2			EN
Church	JED_3_CHURCH	JED_3	JED	2	2	1.1		Assume 200 seats	EN
Oak Trace Elementary School	JED_3_SCHOOL	JED_3	JED	22	9	0.4		Based on water usage (from Peg)	ES
Undeveloped Residential - JED_3	JED_3_U	JED_3	JED	73	187	2.6		Assume 3.0 EDUs/acre	U
Undeveloped Commercial - JED_3	JED_3_UC	JED_3	JED	14	37	2.6		Assume 3.0 EDUs/acre	U
TOTAL JED_3		JED_3	JED	**399**	**1088**		**338,000**		

SUBDIVNAME	SUBSUBBASIN	SUB_BASIN	BASIN	ACRES	EDUs	EDUs/acre	Avg. Flow (gpd)	REMARKS	DEVELOPMENT CLASS*
JED_4 (24-inch J. Edwards Drain Interceptor - includes Maple Knoll - flow to WWTP)									
Maple Knoll	JED_4_MK	JED_4	JED	505	1800	3.6		Maximum from Maple Knoll PUD	A
Maple Knoll - School	JED_4_MK_SCHOOL	JED_4	JED	35	9	0.3		Based on water usage at Oak Trace (from Peg)	A
Maple Knoll - Water Tower	JED_4_MK_M	JED_4	JED	3	0	0.0		Assume 0.0 EDUs/acre	A
Catholic Church (St. Maria Goretti?)	JED_4_MK_CHURCH	JED_4	JED	56	20	0.4		Assume 20 EDUs	ES
Spring Mill Estates	JED_4_SME	JED_4	JED	19	8	0.4			EN
Existing Residential - JED_4	JED_4_E	JED_4	JED	34	5	0.1			EN
Existing Commercial - JED_4	JED_4_EC	JED_4	JED	76	195	2.6		Assume 3.0 EDUs/acre	EN
Municipal/Government	JED_4_M	JED_4	JED	5	0	0.0		Assume 0.0 EDUs/acre	EN
Undeveloped Residential - JED_4	JED_4_U	JED_4	JED	276	704	2.6		Assume 3.0 EDUs/acre	U
Undeveloped Commercial - JED_4	JED_3_UC	JED_4	JED	109	277	2.6		Assume 3.0 EDUs/acre	U
TOTAL JED_4		JED_4	JED	**1119**	**3017**		**936,000**		
TOTAL JED			JED	**2061**	**5233**		**1,625,000**		
WWLS_CCS (This sub-basin will be re-routed to Washington Woods LS via Cool Creek South sewer - currently goes south to Oak Road LS)									
Grassy Knoll	WWLS_CCS_GK	WWLS_CCS	WWLS	20	88	4.3			D
Washington Woods Elementary School	WWLS_CCS_SCHOOL	WWLS_CCS	WWLS	80	8	0.1		Based on water usage (from Peg)	ES
Existing Residential - II_13	WWLS_CCS_E	WWLS_CCS	WWLS	21	2	0.1			EN
Existing Commercial - II_13	WWLS_CCS_EC	WWLS_CCS	WWLS	1.7	4	2.6		Assume 3.0 EDUs/acre	ES
Washinton Park Cemetery	WWLS_CCS_CE	WWLS_CCS	WWLS	107	0	0.0		Assume 0.0 EDUs/acre	EN
Undeveloped Commercial - II_13	WWLS_CCS_UC	WWLS_CCS	WWLS	22	57	2.6		Assume 3.0 EDUs/acre	U
TOTAL WWLS_CCS		**WWLS_CCS**	**WWLS**	**252**	**159**		**50,000**		
WWLS_CCS_SAN (Sandpiper LS will be re-routed to Washington Woods LS via Cool Creek South sewer)									
Ashfield	WWLS_CCS_SAN_AF	WWLS_CCS_SAN	WWLS	21	84	4.0			D
Emlee	WWLS_CCS_SAN_EM	WWLS_CCS_SAN	WWLS	9.0	9	1.0			EN
Pebble Run at Sandpiper Lakes	WWLS_CCS_SAN_PRS	WWLS_CCS_SAN	WWLS	20	66	3.3			D
Sandpiper Lakes (includes Sandpiper Forest)	WWLS_CCS_SAN_SPL	WWLS_CCS_SAN	WWLS	66	221	3.3			D
Existing Residential - II_9	WWLS_CCS_SAN_E	WWLS_CCS_SAN	WWLS	7	5	0.7			EN
Undeveloped Residential - II_9	WWLS_CCS_SAN_U	WWLS_CCS_SAN	WWLS	11	27	2.6		Assume 3.0 EDUs/acre	U
TOTAL WWLS_CCS_SAN		**WWLS_CCS_SAN**	**WWLS**	**133**	**412**		**128,000**		
WWLS_MAIN_TOM (Tomlinson Rd LS - flows to J. Edwards now; flows to Westside Int in future)									
North Bokeelia	WWLS_MAIN_TOM_NB	WWLS_MAIN_TOM	WWLS	19	22	1.2		Will go to Tomlinson Rd LS soon	EN
Existing Residential - WWLS_MAIN_TOM	WWLS_MAIN_TOM_E	WWLS_MAIN_TOM	WWLS	51	22	0.4			ES
Church	WWLS_MAIN_TOM_CHURCH	WWLS_MAIN_TOM	WWLS	10	20	2.0		Assume 20 EDUs per church	EN
Undeveloped School	WWLS_MAIN__TOM_SCHOOL	WWLS_MAIN_TOM	WWLS	87	9	0.1		Assume 13 EDUs (based on Oak Trace)	U
Undeveloped Residential - WWLS_MAIN_TOM	WWLS_MAIN_TOM_U	WWLS_MAIN_TOM	WWLS	401	1022	2.6		Assume 3.0 EDUs/acre	U
Undeveloped Commercial - WWLS_MAIN_TOM	WWLS_MAIN_TOM_UC	WWLS_MAIN_TOM	WWLS	59	151	2.6		Assume 3.0 EDUs/acre	U
TOTAL WWLS_MAIN_TOM		**WWLS_MAIN_TOM**	**WWLS**	**627**	**1247**		**387,000**		
WWLS_MAIN_AN (Andover LS - flows to Washington Woods LS)									
Andover	WWLS_MAIN_AN_AN	WWLS_MAIN_AN	WWLS	352	640	1.8		From Andover PUD	A
Existing Residential - WWLS_MAIN_AN	WWLS_MAIN_AN_E	WWLS_MAIN_AN	WWLS	65	13	0.2			EN
Undeveloped Residential - WWLS_MAIN_AN	WWLS_MAIN_AN_U	WWLS_MAIN_AN	WWLS	46	117	2.6		Assume 3.0 EDUs/acre	U
TOTAL WWLS_MAIN_AN		**WWLS_MAIN_AN**	**WWLS**	**462**	**770**		**239,000**		
WWLS_MAIN (Main interceptor to Washington Woods LS - flow to WWTP)									
Shady Nook Acres	WWLS_MAIN_SNA	WWLS_MAIN	WWLS	9	8	0.9			EN
Morgan Woods	WWLS_MAIN_MW	WWLS_MAIN	WWLS	21	33	1.6		Currently to downtown area	ES
Brookview Place	WWLS_MAIN_BP	WWLS_MAIN	WWLS	19	41	2.1			EN
Canary Meadows	WWLS_MAIN_CM	WWLS_MAIN	WWLS	5	3	0.5			EN
Existing Residential - WWLS_MAIN	WWLS_MAIN_E	WWLS_MAIN	WWLS	424	355	0.8			EN
Existing Commercial - WWLS_MAIN	WWLS_MAIN_EC	WWLS_MAIN	WWLS	94	240	2.6		Assume 3.0 EDUs/acre	EN
Cemetery	WWLS_MAIN_CE	WWLS_MAIN	WWLS	1	0	0.0		Assume 0.0 EDUs/acre	EN
Church	WWLS_MAIN_CHURCH	WWLS_MAIN	WWLS	2	20	10.8		Assume 20 EDUs per church	EN
Undeveloped School	WWLS_MAIN_SCHOOL	WWLS_MAIN	WWLS	87	9	0.1		Assume 13 EDUs (based on Oak Trace)	U
Undeveloped Residential - WWLS_MAIN	WWLS_MAIN_U	WWLS_MAIN	WWLS	402	1026	2.6		Assume 3.0 EDUs/acre	U
Undeveloped Commercial - WWLS_MAIN	WWLS_MAIN_UC	WWLS_MAIN	WWLS	538	1371	2.6		Assume 3.0 EDUs/acre	U
TOTAL WWLS_MAIN		**WWLS_MAIN**	**WWLS**	**1603**	**3106**		**963,000**		
WWLS_196TH (Future 196th Street LS - flow to WWTP via Washington Woods LS)									
Existing Residential - WWLS_196TH	WWLS_196TH_E	WWLS_196TH	WWLS	40	18	0.5			EN
Existing Commercial - WWLS_196TH	WWLS_196TH_EC	WWLS_196TH	WWLS	105	269	2.6		Assume 3.0 EDUs/acre	EN
Municipal	WWLS_196TH_M	WWLS_196TH	WWLS	1	0	0.0		Assume 0.0 EDUs/acre	EN
Undeveloped Residential - WWLS_196TH	WWLS_196TH_U	WWLS_196TH	WWLS	1542	3933	2.6		Assume 3.0 EDUs/acre	U
Undeveloped Commercial - WWLS_196TH	WWLS_196TH_UC	WWLS_196TH	WWLS	164	418	2.6		Assume 3.0 EDUs/acre	U
TOTAL WWLS_196TH		**WWLS_196TH**	**WWLS**	**1852**	**4638**		**1,438,000**		
WWLS_203RD (Future 203rd Street LS - flow to WWTP via Washington Woods LS)									
Colonial Hills Estates	WWLS_203RD_CHE	WWLS_203RD	WWLS	7	5	0.7			EN
Style Rite Meadows	WWLS_203RD_SRM	WWLS_203RD	WWLS	21	30	1.5			EN
Existing Residential - WWLS_203RD	WWLS_203RD_E	WWLS_203RD	WWLS	67	27	0.4			EN
Existing Commercial - WWLS_203RD	WWLS_203RD_EC	WWLS_203RD	WWLS	3	7	2.6		Assume 3.0 EDUs/acre	EN
Undeveloped Residential - WWLS_203RD	WWLS_203RD_U	WWLS_203RD	WWLS	704	1794	2.6		Assume 3.0 EDUs/acre	U
Undeveloped Commercial - WWLS_203RD	WWLS_203RD_UC	WWLS_203RD	WWLS	842	2146	2.6		Assume 3.0 EDUs/acre	U
TOTAL WWLS_203RD		**WWLS_203RD**	**WWLS**	**1643**	**4010**		**1,244,000**		

Appendix D
Ultimate EDU Assignments
Westfield Wastewater Master Plan
Town of Westfield, Indiana

SUBDIVNAME	SUBSUBBASIN	SUB_BASIN	BASIN	ACRES	EDUs	EDUs/acre	Avg. Flow (gpd)	REMARKS	DEVELOPMENT CLASS*
WWLS_216TH (Future 216th Street LS - flow to WWTP via Washington Woods LS)									
Existing Residential - WWLS_216TH	WWLS_216TH_E	WWLS_216TH	WWLS	176	50	0.3			EN
Existing Commercial - WWLS_216TH	WWLS_216TH_EC	WWLS_216TH	WWLS	9	23	2.6		Assume 3.0 EDUs/acre	EN
Undeveloped Residential - WWLS_216TH	WWLS_216TH_U	WWLS_216TH	WWLS	253	644	2.6		Assume 3.0 EDUs/acre	U
Undeveloped Commercial - WWWL_216TH	WWLS_216TH_UC	WWLS_216TH	WWLS	177	450	2.6		Assume 3.0 EDUs/acre	U
Municipal	WWLS_216TH_M	WWLS_216TH	WWLS	42	108	2.6		Assume 3.0 EDUs/acre	EN/U
TOTAL WWLS_216TH		**WWLS_216TH**	**WWLS**	**656**	**1275**		**396,000**		
TOTAL WWLS (Washington Woods LS)			**WWLS**	**7229**	**15618**		**4,845,000**		
WEST_1									
Church - WEST_1	WEST_1_CHURCH	WEST_1	WEST	3	8	2.6		Assume 3.0 EDUs/acre	EN
Existing Residential - WEST_1	WEST_1_E	WEST_1	WEST	174	117	0.7			EN
Undeveloped Residential - WEST_1	WEST_1_U	WEST_1	WEST	1087	2772	2.6		Assume 3.0 EDUs/acre	U
TOTAL WEST_1		**WEST_1**	**WEST**	**1264**	**2897**		**899,000**		
WEST_2									
Existing Residential - WEST_2	WEST_2_E	WEST_2	WEST	7	3	0.4			EN
Undeveloped Residential - WEST_2	WEST_2_U	WEST_2	WEST	431	1100	2.6		Assume 3.0 EDUs/acre	U
TOTAL WEST_2		**WEST_2**	**WEST**	**439**	**1103**		**342,000**		
WEST_3									
Existing Residential - WEST_3	WEST_3_E	WEST_3	WEST	6	2	0.3			EN
Existing Commercial - WEST_3	WEST_3_EC	WEST_3	WEST	2	6	2.6		Assume 3.0 EDUs/acre	EN
Undeveloped Residential - WEST_3	WEST_3_U	WEST_3	WEST	231	588	2.6		Assume 3.0 EDUs/acre	U
TOTAL WEST_3		**WEST_3**	**WEST**	**239**	**596**		**185,000**		
WEST_4									
Church - WEST_4	WEST_4_CHURCH	WEST_4	WEST	1	1	2.6		Assume 3.0 EDUs/acre	EN
Existing Residential - WEST_4	WEST_4_E	WEST_4	WEST	47	18	0.4			EN
Undeveloped Residential - WEST_4	WEST_4_U	WEST_4	WEST	658	1678	2.6		Assume 3.0 EDUs/acre	U
TOTAL WEST_4		**WEST_4**	**WEST**	**706**	**1697**		**527,000**		
WEST_5									
Existing Residential - WEST_5	WEST_5_E	WEST_5	WEST	17	6	0.4			EN
Undeveloped Residential - WEST_5	WEST_5_U	WEST_5	WEST	487	1243	2.6		Assume 3.0 EDUs/acre	U
TOTAL WEST_5		**WEST_5**	**WEST**	**504**	**1249**		**388,000**		
WEST_6									
Existing Residential - WEST_6	WEST_6_E	WEST_6	WEST	91	30	0.3			EN
Existing Commercial - WEST_6	WEST_6_EC	WEST_6	WEST	18	45	2.6		Assume 3.0 EDUs/acre	EN
Undeveloped Residential - WEST_6	WEST_6_U	WEST_6	WEST	538	1373	2.6		Assume 3.0 EDUs/acre	U
TOTAL WEST_6		**WEST_6**	**WEST**	**647**	**1447**		**449,000**		
WEST_7									
Church - WEST_7	WEST_7_CHURCH	WEST_7	WEST	1	2	2.6		Assume 3.0 EDUs/acre	EN
Existing Residential - WEST_7	WEST_7_E	WEST_7	WEST	41	3	0.1			EN
Undeveloped Residential - WEST_7	WEST_7_U	WEST_7	WEST	309	787	2.6		Assume 3.0 EDUs/acre	U
TOTAL WEST_7		**WEST_7**	**WEST**	**350**	**792**		**246,000**		
WEST_8									
Church - WEST_8	WEST_8_CHURCH	WEST_8	WEST	13	33	2.6		Assume 3.0 EDUs/acre	EN
Existing Residential - WEST_8	WEST_8_E	WEST_8	WEST	14	6	0.4			EN
Undeveloped Residential - WEST_8	WEST_8_U	WEST_8	WEST	243	620	2.6		Assume 3.0 EDUs/acre	U
TOTAL WEST_8		**WEST_8**	**WEST**	**270**	**659**		**205,000**		
WEST_9									
Existing Residential - WEST_9	WEST_9_E	WEST_9	WEST	17	8	0.5			EN
Undeveloped Residential - WEST_9	WEST_9_U	WEST_9	WEST	483	1232	2.6		Assume 3.0 EDUs/acre	U
TOTAL WEST_9		**WEST_9**	**WEST**	**501**	**1240**		**385,000**		
WEST_10									
Existing Residential - WEST_10	WEST_10_E	WEST_10	WEST	22	8	0.4			EN
Undeveloped Residential - WEST_10	WEST_10_U	WEST_10	WEST	361	920	2.6		Assume 3.0 EDUs/acre	U
TOTAL WEST_10		**WEST_10**	**WEST**	**382**	**928**		**288,000**		
WEST_11									
Existing Residential - WEST_11	WEST_11_EC	WEST_11	WEST	52	5	0.1			EN
Existing Commercial - WEST_11	WEST_11_EC	WEST_11	WEST	15	39	2.6		Assume 3.0 EDUs/acre	EN
Undeveloped Residential - WEST_11	WEST_11_U	WEST_11	WEST	201	513	2.6		Assume 3.0 EDUs/acre	U
TOTAL WEST_11		**WEST_11**	**WEST**	**269**	**558**		**173,000**		
WEST_12									
Existing Residential - WEST_12	WEST_12_E	WEST_12	WEST	45	17	0.4			EN
Existing Commercial - WEST_12	WEST_12_EC	WEST_12	WEST	35	89	2.6		Assume 3.0 EDUs/acre	EN
Undeveloped Residential - WEST_12	WEST_12_U	WEST_12	WEST	1289	3286	2.6		Assume 3.0 EDUs/acre	U
Undeveloped Commercial - WEST_12	WEST_12_UC	WEST_12	WEST	9	24	2.6		Assume 3.0 EDUs/acre	U
TOTAL WEST_12		**WEST_12**	**WEST**	**1378**	**3417**		**1,060,000**		
WEST_13									
Existing Residential - WEST_13	WEST_13_EC	WEST_13	WEST	180	141	0.8			EN
Existing Commercial - WEST_13	WEST_13_EC	WEST_13	WEST	11	28	2.6		Assume 3.0 EDUs/acre	EN
Undeveloped Residential - WEST_13	WEST_13_U	WEST_13	WEST	1504	3835	2.6		Assume 3.0 EDUs/acre	U
TOTAL WEST_13		**WEST_13**	**WEST**	**1695**	**4004**		**1,242,000**		
TOTAL_WEST (Westside Interceptor)			**WEST**	**8,643**	**20,586**		**6,389,000**		

SUBDIVNAME	SUBSUBBASIN	SUB_BASIN	BASIN	ACRES	EDUs	EDUs/acre	Avg. Flow (gpd)	REMARKS	DEVELOPMENT CLASS*
NW_1									
Existing Residential - NW_1	NW_1_E	NW_1	NW	28	9	0.3			EN
Undeveloped Residential - NW_1	NW_1_U	NW_1	NW	1180	1505	1.3		Assume 1.5 EDUs/acre	U
Undeveloped Commercial - NW_1	NE_1_UC	NW_1	NW	41	106	2.6		Assume 3 EDUs/acre	U
TOTAL NW_1		**NW_1**	**NW**	**1250**	**1620**		**503,000**		
NW_2									
Existing Residential - NW_2	NW_2_E	NW_2	NW	9	3	0.3			EN
Undeveloped Residential - NW_2	NW_2_U	NW_2	NW	389	496	1.3		Assume 1.5 EDUs/acre	U
TOTAL NW_2		**NW_2**	**NW**	**398**	**499**		**155,000**		
NW_3									
Existing Residential - NW_3	NW_3_E	NW_3	NW	17	5	0.3			EN
Undeveloped Residential - NW_3	NW_3_U	NW_3	NW	358	457	1.3		Assume 1.5 EDUs/acre	U
TOTAL NW_3		**NW_3**	**NW**	**375**	**462**		**144,000**		
NW_4									
Existing Residential - NW_4	NW_4_E	NW_4	NW	56	11	0.2			EN
Undeveloped Residential - NW_4	NW_4_U	NW_4	NW	325	414	1.3		Assume 1.5 EDUs/acre	U
TOTAL NW_4		**NW_4**	**NW**	**381**	**425**		**132,000**		
NW_5									
Existing Residential - NW_5	NW_5_E	NW_5	NW	39	14	0.4			EN
Undeveloped Residential - NW_5	NW_5_U	NW_5	NW	347	443	1.3		Assume 1.5 EDUs/acre	U
TOTAL NW_5		**NW_5**	**NW**	**386**	**457**		**142,000**		
NW_6									
Existing Residential - NW_6	NW_6_E	NW_6	NW	37	10	0.3			EN
Undeveloped Residential - NW_6	NW_6_U	NW_6	NW	689	878	1.3		Assume 1.5 EDUs/acre	U
TOTAL NW_6		**NW_6**	**NW**	**726**	**888**		**276,000**		
NW_7									
Existing Residential - NW_7	NW_7_E	NW_7	NW	51	14	0.3			EN
Undeveloped Residential - NW_7	NW_7_U	NW_7	NW	332	424	1.3		Assume 1.5 EDUs/acre	U
TOTAL NW_7		**NW_7**	**NW**	**384**	**438**		**136,000**		
NW_8									
Existing Residential - NW_8	NW_8_E	NW_8	NW	29	9	0.3			EN
Undeveloped Residential - NW_8	NW_8_U	NW_8	NW	272	577	2.1		Assume 2.5 EDUs/acre	U
TOTAL NW_8		**NW_8**	**NW**	**301**	**586**		**182,000**		
NW_9									
Existing Residential - NW_9	NW_9_E	NW_9	NW	197	115	0.6			EN
Undeveloped Residential - NW_9	NW_9_U	NW_9	NW	685	1455	2.1		Assume 2.5 EDUs/acre	U
TOTAL NW_9		**NW_9**	**NW**	**882**	**1570**		**487,000**		
NW_10									
Existing Residential - NW_10	NW_10_E	NW_10	NW	48	32	0.7			EN
Undeveloped Residential - NW_10	NW_10_U	NW_10	NW	665	1413	2.1		Assume 2.5 EDUs/acre	U
TOTAL NW_10		**NW_10**	**NW**	**713**	**1445**		**449,000**		
NW_11									
Existing Residential - NW_11	NW_11_E	NW_11	NW	62	14	0.2			EN
Undeveloped Residential - NW_11	NW_11_U	NW_11	NW	150	318	2.1		Assume 2.5 EDUs/acre	U
TOTAL NW_11		**NW_11**	**NW**	**212**	**332**		**103,000**		
NW_12									
Existing Residential - NW_12	NW_12_E	NW_12	NW	26	6	0.2			EN
Undeveloped Residential - NW_12	NW_12_U	NW_12	NW	103	218	2.1		Assume 2.5 EDUs/acre	U
TOTAL NW_12		**NW_12**	**NW**	**129**	**224**		**70,000**		
TOTAL NW (Northwest Interceptor)			**NW**	**6,135**	**8,946**		**2,779,000**		
SW_1									
Existing Residential - SW_1	SW_1_E	SW_1	SW	17	4	0.2			EN
Undeveloped Residential - SW_1	SW_1_U	SW_1	SW	77	163	2.1		Assume 2.5 EDUs/acre	U
TOTAL SW_1		**SW_1**	**SW**	**94**	**167**		**52,000**		
SW_2									
Existing Residential - SW_2	SW_2_E	SW_2	SW	24	9	0.4			EN
Undeveloped Residential - SW_2	SW_2_U	SW_2	SW	151	321	2.1		Assume 2.5 EDUs/acre	U
TOTAL SW_2		**SW_2**	**SW**	**175**	**330**		**103,000**		
SW_3									
Existing Residential - SW_3	SW_3_E	SW_3	SW	150	34	0.2			EN
Undeveloped Residential - SW_3	SW_3_U	SW_3	SW	442	940	2.1		Assume 2.5 EDUs/acre	U
TOTAL SW_3		**SW_3**	**SW**	**593**	**974**		**303,000**		
SW_4									
Existing Residential - SW_4	SW_4_E	SW_4	SW	0	1	2.1			EN
Undeveloped Residential - SW_4	SW_4_U	SW_4	SW	129	275	2.1		Assume 2.5 EDUs/acre	U
TOTAL SW_4		**SW_4**	**SW**	**130**	**276**		**86,000**		
SW_5									
Existing Residential - SW_5	SW_5_E	SW_5	SW	61	15	0.2			EN
TOTAL SW_5		**SW_5**	**SW**	**61**	**15**		**5,000**		
SW_6									
Existing Residential - SW_6	SW_6_E	SW_6	SW	258	39	0.2			EN

SUBDIVNAME	SUBSUBBASIN	SUB_BASIN	BASIN	ACRES	EDUs	EDUs/acre	Avg. Flow (gpd)	REMARKS	DEVELOPMENT CLASS*
Undeveloped Residential - SW_6	SW_6_U	SW_6	SW	1	1	2.1		Assume 2.5 EDUs/acre	U
TOTAL SW_6		**SW_6**	**SW**	**258**	**40**		**13,000**		

Appendix D
Ultimate EDU Assignments
Westfield Wastewater Master Plan
Town of Westfield, Indiana

SUBDIVNAME	SUBSUBBASIN	SUB_BASIN	BASIN	ACRES	EDUs	EDUs/acre	Avg. Flow (gpd)	REMARKS	DEVELOPMENT CLASS*
SW_7									
Existing Residential - SW_7	SW_7_E	SW_7	SW	98	10	0.1			EN
TOTAL SW_7		**SW_7**	**SW**	**98**	**10**		**4,000**		
SW_8									
Existing Residential - SW_8	SW_8_E	SW_8	SW	190	13	0.1			EN
Undeveloped Residential - SW_8	SW_8_U	SW_8	SW	196	417	2.1		Assume 2.5 EDUs/acre	U
TOTAL SW_8		**SW_8**	**SW**	**386**	**430**		**134,000**		
TOTAL SW (Southwest Interceptor - Castner Farms LS)			**SW**	**1,795**	**2,243**		**700,000**		

* Development Class: D = development; A = assumed development; U = undeveloped; ES = existing sewered; EN = existing non-sewered

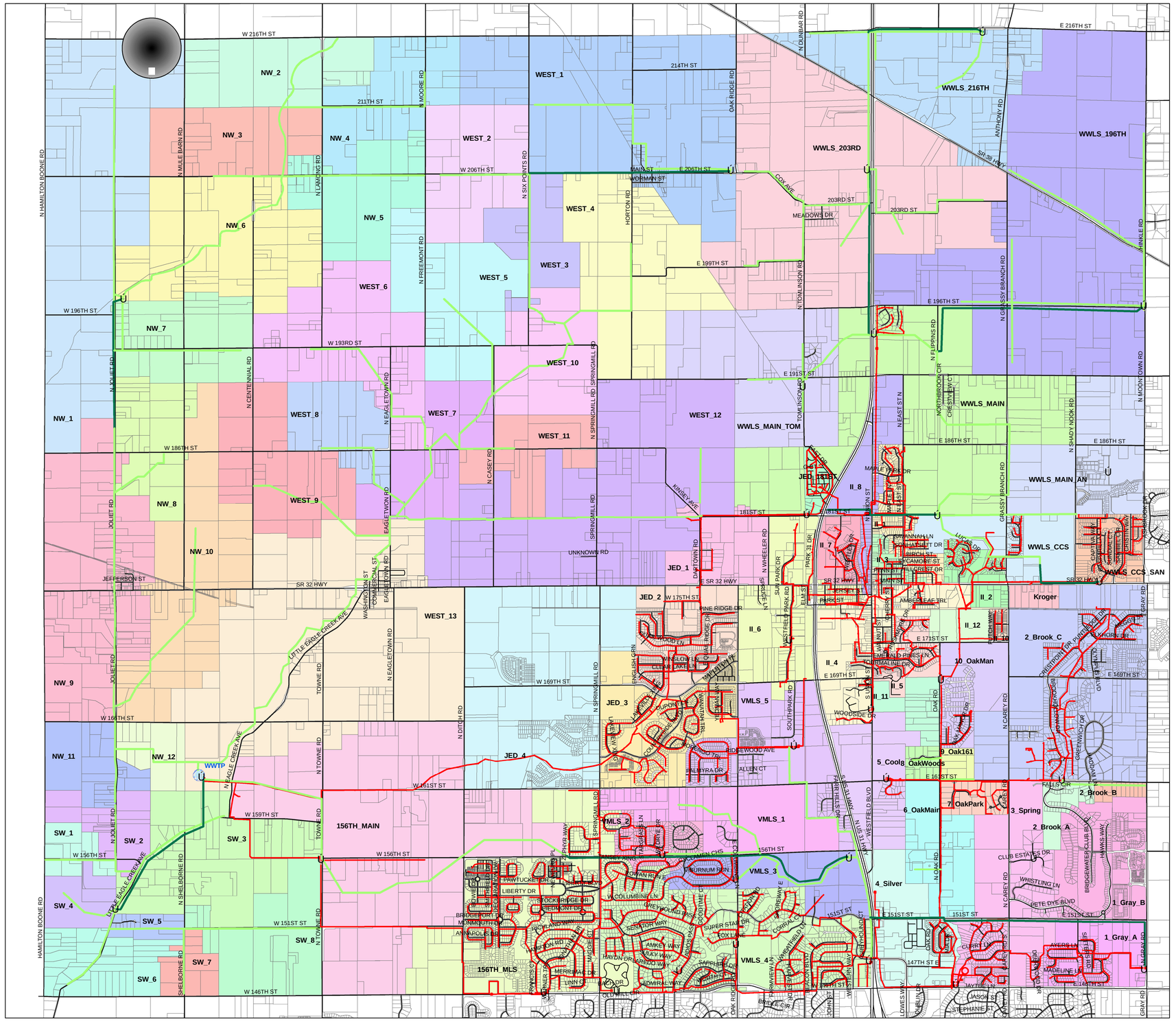
Appendix E
Ultimate Sub-Basins
Westfield Wastewater Master Plan
Town of Westfield, Indiana

SUB_BASIN	BASIN	ACRES	EDUS	EDUS_ACRES	AVG_FL_GPD	P_FACTOI	PEAK_FL_MGD	LS_CAP_MGD	SEWER_SIZE	SEWER_CAP_MGD	AVAIL_CAP_MGD	AVAIL_EDUS	REMARKS
1_Gray_A	1_Gray	206	701	3.4	218,000	3.6	0.78		12.00	1.08	0.30	276	
1_Gray_B	1_Gray	296	582	2.0	181,000	3.6	0.66		8.00	0.49	-0.17	-147	
Setters Run LS		502	1283	2.6	399000	3.3	1.33	1.62			0.29	280	
2_Brook_A	2_Brook	64	78	1.2	25,000	4.1	0.10		8.00	0.49	0.39	304	
2_Brook_B	2_Brook	48	12	0.3	4,000	4.3	0.02		8.00	0.49	0.47	352	
2_Brook_C	2_Brook	911	1254	1.4	389,000	3.3	1.30		15.00	1.62	0.32	308	
Brookside LS		1022	1344	1.3	418000	3.3	1.39	1.40			0.01	13	
3_Spring	3_Spring	501	690	1.4	214,000	3.6	0.76		12.00	1.08	0.32	288	
4_Silver	4_Silver	274	630	2.3	196,000	3.6	0.70		8.00	0.49	-0.21	-192	
5_Cool	5_Cool	269	375	1.4	117,000	3.8	0.44	0.17			-0.27	-235	
6_OakMain	6_OakMain	249	216	0.9	67,000	3.9	0.26		8.00	0.49	0.23	189	
7_OakPark	7_OakPark	75	77	1.0	24,000	4.1	0.10		8.00	0.49	0.39	306	
8_OakWoods	8_OakWoods	37	14	0.4	5,000	4.3	0.02		8.00	0.49	0.47	350	
9_Oak161	9_Oak161	37	88	2.4	28,000	4.1	0.11		8.00	0.49	0.38	296	
10_OakMan	10_OakMan	196	291	1.5	91,000	3.8	0.35		8.00	0.49	0.14	120	
Kroger	Kroger	38	64	1.7	20,000	4.1	0.08		8.00	0.49	0.41	317	
II_1	II	119	372	3.1	116,000	3.8	0.44		8.00	0.49	0.05	46	
II_2	II	92	249	2.7	78,000	3.9	0.30		8.00	0.49	0.19	157	
II_3	II	39	85	2.2	27,000	4.1	0.11		8.00	0.49	0.38	299	
II_4	II	324	709	2.2	220,000	3.6	0.78		12.00	1.08	0.30	271	
II_5	II	100	310	3.1	96,000	3.8	0.37		8.00	0.49	0.12	105	
II_6	II	377	511	1.4	159,000	3.7	0.58		10.00	0.75	0.17	148	
II_7	II	89	87	1.0	28,000	4.1	0.11		8.00	0.49	0.38	296	
II_8	II	185	209	1.1	65,000	3.9	0.25		8.00	0.49	0.24	194	
II_10	II	16	66	4.0	21,000	4.1	0.09		8.00	0.49	0.40	314	
II_11	II	96	60	0.6	19,000	4.2	0.08		8.00	0.49	0.41	319	
II_12	II	66	4	0.1	2,000	4.4	0.01		8.00	10.49	10.48	7718	
Oak Rd LS		813	1377	1.7	426896	3.3	1.28	1.60			0.32	312	
18-inch Cool Cr		1970	3269	1.7	79333	3.9	3.31		18.00	2.80	-0.51	-423	slope = 0.17%
21-inch Cool Cr		2405	3788	1.6	241000	3.5	3.85		21.00	3.40	-0.45	-411	slope = 0.11%
VMLS_1	VMLS	368	604	1.6	188,000	3.6	0.68		10.00	0.75	0.07	64	
VMLS_2	VMLS	104	292	2.8	91,000	3.8	0.35		10.00	0.75	0.40	339	
VMLS_3	VMLS	745	1425	1.9	444,000	3.3	1.46		15.00	1.62	0.16	155	
VMLS_4	VMLS	719	1483	2.1	460,000	3.3	1.51		15.00	1.62	0.11	110	
VMLS_4+1_Gra	VMLS	1221	2766	2.3	460,000	3.3	3.13		21.00	3.24	0.11	110	
VMLS_5	VMLS	415	912	2.2	283,000	3.5	0.98		12.00	1.10	0.12	112	
VMLS_4+_5+1_Gray		1636	3678	2.2	743000	3.1	3.91		21.00	3.97	0.06	63	slope = 0.15% instead of 0.10%
Viking Meadows LS		2853	4717	1.7	1,462,270	2.8	5.70	5.10			-0.60	-693	
156TH_MLS	156TH	861	2134	2.5	662000	3.1	2.07	1.80			-0.27	-280	
156TH_MAIN	156TH	2255	4913	2.2	1524000	2.8	6.16		30.00	6.40	0.24	284	
156th_main+VMLS+MLS		5968	11764	2.0	1,524,000	2.8	11.12		36.00	11.18	0.06	66	slope = 0.067% instead of 0.046%
JED_181ST	JED	47	157	3.3	49,000	4.0	0.19	0.23			0.04	28	
JED_1	JED	209	213	1.0	67,000	3.9	0.49		12.00	1.08	0.59	486	
JED_2	JED	287	757	2.6	235,000	3.4	1.27		15.00	1.62	0.35	329	
JED_3	JED	399	1088	2.7	338,000	3.1	2.24		18.00	2.36	0.12	121	
JED_4	JED	1119	3017	2.7	936,000	2.8	4.57		24.00	4.15	-0.42	-497	
WWLS_216TH	WWLS	656	1275	1.9	396000	3.3	1.32	1.35			0.03	28	
WWLS_203RD	WWLS	2299	5285	2.3	1640000	2.7	4.49	4.50			0.01	9	
WWLS_MAIN_T	WWLS	627	1247	2.0	387000	3.3	1.29		15.00	1.62	0.33	313	
Washington Woods sewer 1		3460	7567	2.2	2348000	2.6	6.06		30.00	6.40	0.34	419	
WWLS_196TH	WWLS	1852	4638	2.5	1438000	2.8	4.02	4.10			0.08	90	
Washington Woods sewer 2		5847	13241	2.3	4107000	2.3	9.63		36.00	9.66	0.03	40	slope = 0.05% instead of 0.046%
WWLS_MAIN_A	WWLS	462	770	1.7	239000	3.5	0.84	1.18			0.34	309	
WWLS_MAIN	WWLS	6843	15046	2.2	4667000	2.3	10.70		36.00	10.75	0.05	71	slope = 0.062% instead of 0.046%
WWLS_CCS	WWLS	252	159	0.6	50000	3.6	0.65		12.00	1.10	0.45	405	
WWLS_CCS_SA	WWLS	133	412	3.1	128000	3.7	0.48	0.59			0.11	98	
Washington Woods LS		7229	15618	2.2	4845000	2.3	11.03	11.00			-0.03	-47	

Appendix E
Ultimate Sub-Basins
Westfield Wastewater Master Plan
Town of Westfield, Indiana

SUB_BASIN	BASIN	ACRES	EDUS	EDUS_ACRES	AVG_FL_GPD	P_FACTOR	PEAK_FL_MGD	LS_CAP_MGD	SEWER_SIZE	SEWER_CAP_MGD	AVAIL_CAP_MGD	AVAIL_EDUS	REMARKS
WEST_1	WEST	1264	2897	2.3	899,000	3.0	2.70	2.70			0.00	3	
WEST_2	WEST	439	1103	2.5	342000	3.4	1.16		15.00	1.62	0.46	437	
WEST_3	WEST	1941	4595	2.4	1426000	2.8	3.99		24.00	4.14	0.15	169	
WEST_4	WEST	706	1697	2.4	527000	3.2	1.70		15.00	1.62	-0.08	-79	
WEST_1+_2+_3+_4		2647	6292	2.4	1953000	2.7	5.20		30.00	6.40	1.20	1453	
WEST_5	WEST	504	1249	2.5	388000	3.3	1.30		15.00	1.62	0.32	311	
WEST_1+_2+_3+_4+_5+_10		3533	8469	2.4	2629000	2.5	6.66		30.00	6.67	0.01	11	slope = 0.063% instead of 0.058%
WEST_1 -_5+1/2*_7+_10+_11		3977	9423	2.4	2925000	2.5	7.28		36.00	9.26	1.98	2570	
WEST_6	WEST	647	1447	2.2	449000	3.3	1.48		15.00	1.62	0.14	141	
WEST_7	WEST	4799	11266	2.3	3497000	2.4	8.44		36.00	9.26	0.82	1103	
WEST_8	WEST	270	659	2.4	205000	3.6	0.73		10.00	0.75	0.02	15	
WEST_1 -_8 +_10 & _11		5069	11925	2.4	3702000	2.4	8.84		36.00	9.26	0.42	565	
WEST_9	WEST	501	1240	2.5	385000	3.3	1.29		15.00	1.62	0.33	319	
WEST_10	WEST	3029	7220	2.4	2241000	2.6	5.83		30.00	6.40	0.57	702	
WEST_11	WEST	269	558	2.1	173000	3.6	0.63		10.00	0.75	0.12	108	
WEST_12	WEST	8607	19034	2.2	5905000	2.2	12.98		42.00	12.50	-0.48	-705	
WEST_1-_8 + _10-_12+WWLS		13676	30959	2.3	9607000	2.0	19.35		48.00	24.60	5.25	8404	
WEST_13	WEST	15872	36203	2.3	11234000	2.0	22.01		54.00	31.20	9.19	15138	
NW_1	NW	1250	1620	1.3	503,000	3.2	1.63		15.00	1.62	-0.01	-11	
NW_2	NW	398	499	1.3	155000	3.7	0.57		10.00	0.75	0.18	159	
NW_2+NW_4		779	924	1.2	287000	3.5	0.99		12.00	1.08	0.09	81	
NW_3	NW	375	462	1.2	144000	3.7	0.53		10.00	0.75	0.22	191	
NW_4	NW	381	425	1.1	132000	3.7	0.49		8.00	0.49	0.00	-1	
NW_5	NW	386	457	1.2	142000	3.7	0.52		10.00	0.75	0.23	196	
NW_2-NW_5+1/2 NW_6		1903	2287	1.2	711000	3.1	2.20		18.00	2.36	0.16	162	
NW_6	NW	2266	2730	1.2	849000	3.0	2.57		21.00	3.24	0.67	716	
NW_7	NW	384	438	1.1	136000	3.7	0.50		10.00	0.75	0.25	213	
NW LS		3899	4788	1.2	1488000	2.8	4.14	4.20			0.06	70	Lift Station
NW_1-NW_7		3899	4788	1.2	1488000	2.8	4.14		24.00	4.14	0.00	1	Interceptor
NW_8	NW	301	586	1.9	182000	3.6	0.66		10.00	0.75	0.09	82	
NW_1-NW_8+1/2 NW_9		4641	6159	1.3	1913500	2.7	5.11		27.00	5.19	0.08	94	
NW_1-NW_9		5082	6944	1.4	2157000	2.6	5.65		30.00	6.40	0.75	923	
NW_10	NW	713	1445	2.0	449000	3.3	1.48		15.00	1.62	0.14	141	
NW_1-NW_10		5795	8390	1.4	2606000	2.5	6.61		30.00	6.61	0.00	-4	slope = 0.062% instead of 0.058%
NW_11	NW	212	332	1.6	103000	3.8	0.39		8.00	0.49	0.10	85	
NW_1-NW_12		6135	8946	1.5	2779000	2.5	6.98		36.00	9.26	2.28	2936	
NW+WEST		22007	45149	2.1	14013000	2.0	28.03		60.00	37.70	9.67	15603	
SW_1	SW	94	167	1.8	52000	4.0	0.21		8.00	0.49	0.28	231	
SW_2	SW	175	330	1.9	103000	3.8	0.39		8.00	0.49	0.10	85	
SW_1 + SW_2		269	497	1.9	155000	3.7	0.57		10.00	0.75	0.18	159	Short Interceptor on south end of SW_1
SW_3	SW	593	974	1.6	303000	3.4	1.04		12.00	1.08	0.04	36	Interceptor
SW_1-_3		861	1472	1.7	458000	3.3	1.50		15.00	1.62	0.12	116	
SW_4	SW	130	276	2.1	86000	3.8	0.33		8.00	0.49	0.16	134	
SW_5	SW	61	15	0.2	5000	3.7	0.53		10.00	0.75	0.22	194	
SW_6	SW	258	40	0.2	13000	4.2	0.05		8.00	0.49	0.44	333	
SW_7	SW	98	10	0.1	4000	4.3	0.02		8.00	0.49	0.47	352	
SW_8	SW	386	430	1.1	134000	3.7	0.50		10.00	0.75	0.25	219	Test
SW LS		1795	2243	1.2	700000	3.1	2.17	2.20			0.03	26	Lift Station

Note: Sewer capacities are based on minimum slope to maintain a velocity of 2 ft/s



Legend

- Ú WPWD_Existing_Lift_Stations
- Ú WPWD_Proposed_Lift_Stations
- WWTP
- Proposed Force Main
- Proposed Sewer
- Existing Sewer
- Centerline
- parcels

SUB_BASIN

- 10_OakMan
- 156TH_MAIN
- 156TH_MLS
- 1_Gray_A
- 1_Gray_B
- 2_Brook_A
- 2_Brook_B
- 2_Brook_C
- 3_Spring
- 4_Silver
- 5_Cool
- 6_OakMain
- 7_OakPark
- 8_OakWoods
- 9_Oak161
- II_1
- II_10
- II_11
- II_12
- II_2
- II_3
- II_4
- II_5
- II_6
- II_7
- II_8
- JED_1
- JED_181ST
- JED_2
- JED_3
- JED_4
- Westfield Marketplace
- NW_1
- NW_10
- NW_11
- NW_12
- NW_2
- NW_3
- NW_4
- NW_5
- NW_6
- NW_7
- NW_8
- NW_9
- SW_1
- SW_2
- SW_3
- SW_4
- SW_5
- SW_6
- SW_7
- SW_8
- VMLS_1
- VMLS_2
- VMLS_3
- VMLS_4
- VMLS_5
- WEST_1
- WEST_10
- WEST_11
- WEST_12
- WEST_13
- WEST_2
- WEST_3
- WEST_4
- WEST_5
- WEST_6
- WEST_7
- WEST_8
- WEST_9
- WWLS_196TH
- WWLS_203RD
- WWLS_216TH
- WWLS_CCS
- WWLS_CCS_SAN
- WWLS_MAIN
- WWLS_MAIN_AN
- WWLS_MAIN_TOM

Exhibit A
Westfield Wastewater Master Plan Overall Map
Westfield Wastewater Master Plan
September 2006