STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

IN THE MATTER OF THE PETITION OF THE TOWN OF WINFIELD, LAKE COUNTY, INDIANA, FOR APPROVAL OF A REGULATORY ORDINANCE ESTABLISHING A SERVICE TERRITORY FOR THE TOWN'S MUNICIPAL SEWER SYSTEM PURSUANT TO IND. CODE § 8-1.5-6 *ET SEQ.*	))))))))	**CAUSE NO.: 45992**

THE CITY OF CROWN POINT, INDIANA'S SUBMISSION OF THE VERIFIED RESPONSIVE TESTIMONY AND EXHIBITS OF ALBERT STONG, P.E.

Petitioner/Intervenor, the City of Crown Point, Indiana, by counsel, submits the Verified Responsive Testimony of and Exhibits of Albert Stong, P.E., in this Cause.

Respectfully submitted,

/s/ Mark W. Cooper
Mark W. Cooper, an Attorney for the
City of Crown Point

/s/ Robert M. Glennon
Robert M. Glennon, Attorney for
Crown Point, Indiana

CERTIFICATE OF SERVICE

The undersigned certifies that a copy of the foregoing has been served upon the following counsel of record by electronic mail this 19th day of August 2025:

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Verified Responsive Testimony of Albert Stong, P.E.
Petitioner/Intervenor City of Crown Point, Indiana
Exhibit 4

STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

IN THE MATTER OF THE PETITION OF THE TOWN OF WINFIELD, LAKE COUNTY, INDIANA, FOR APPROVAL OF A REGULATORY ORDINANCE ESTABLISHING A SERVICE TERRITORY FOR THE TOWN'S MUNICIPAL SEWER SYSTEM PURSUANT TO IND. CODE 8-1.5-6 ET. SEQ.	**)**	**CAUSE NO. 45992**

VERIFIED RESPONSIVE TESTIMONY AND EXHIBITS

OF

ALBERT STONG, P.E.

ON BEHALF OF PETITIONER/INTERVENOR,

CITY OF CROWN POINT, INDIANA

Q1. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS FOR THE RECORD.

A1. My name is Albert Stong, and my business address is 7256 Company Drive, Indianapolis, Indiana.

Q2. BY WHOM ARE YOU EMPLOYED AND WHAT IS YOUR POSITION?

A2. I am a Professional Engineer, licensed in the State of Indiana, and a Senior Project Manager for Commonwealth Engineers, Inc., where I have been employed for the past 28 years.

Q3. ARE YOU THE SAME ALBERT STONG WHO PREVIOUSLY PREFILED DIRECT TESTIMONY ON BEHALF OF THE CITY OF CROWN POINT, INDIANA ("CROWN POINT") IN THIS CAUSE?

A3. Yes, I am.

Q4. WHAT IS THE PURPOSE OF THIS TESTIMONY YOU PRESENT HERE?

A4. My testimony responds to the Direct Testimony and Exhibits of Winfield's witnesses and related Discovery Responses, generally, regarding engineering matters.

Q5. WHAT HAVE YOU DONE TO PREPARE TO GIVE YOUR RESPONSIVE TESTIMONY?

A5. I have: reviewed the Testimony and Exhibits of Winfield Witnesses; reviewed many Discovery Requests and Responses in this Cause; reviewed publicly available information pertinent to this Cause; conferred with other professionals; my staff; and Crown Point personnel. I have also conducted, or supervised the conducting of, engineering analysis discussed in this testimony.

Q6. DO YOU HAVE EXHIBITS TO YOUR RESPONSIVE TESTIMONY?

A6. Yes, they are identified, as follows:

Exhibit 4-1: Comparative Sanitary Conveyance System Service Scenarios (Crown Point vs Winfield) for LBL Development
Descriptions, Analysis, and Project Cost Estimates

Exhibit 4-2: Winfield Plan for Sanitary Collection and Conveyance System Service for the Entire Expanded Service Territory
Description, Analysis, and Project Cost Estimate

Exhibit 4-3: Comparative Conveyance System Service Scenarios (Crown Point vs Winfield) for US 231 Corridor Likely Initial Development Scenario
Description, Analysis, and Project Cost Estimates

Q7. PLEASE SUMMARIZE YOUR CONCERNS REGARDING MR. DUFFY'S DIRECT TESTIMONY AND THE WINFIELD PLANS TO SERVE ITS REQUESTED REGULATED TERRITORY, SPECIFICALLY THE DISPUTED AREA.

A7. I have many concerns about Winfield's engineering proposals. They do not appear to be well thought-out and lack necessary detail. Winfield's infrastructure improvements concepts exemplify engineering that is unreasonably complex and costly from having to overcome very unfavorable topography with daisy chained high-cost high maintenance lifts stations, long force mains and existing Winfield facilities that are not sized to meet future growth. This complex unreasonably costly engineering design seems forced to achieve the goal of controlling land development rather than a reasonable and efficient low-cost sewage service.

Unlike Crown Point's efficient, 100% gravity flow, low cost, low maintenance conveyance system engineering plans, Winfield's concepts are high cost high maintenance engineering that has multiple daisy chain lift stations and often redundant force mains The high cost of Winfield's improvements concepts will discourage

development in the Disputed Area by burdening potential developers with those very high cost sewage conveyance facilities.

If development were to occur, those high costs would then be passed onto those who buy new homes, lots or business locations in the Disputed Area. LBL Development's steadfast opposition in this Cause to Winfield serving the Disputed Area clearly demonstrates developer rejection of Winfield's complex, high-cost engineering proposals.

Winfield's proposal to fully serve the LBL development relies on a combination of projects yet to be defined and detailed by Winfield but inclusive of:

1. Three (3) lift stations; one new lift station at the development and 2 modified existing lift stations to increase capacity) and 20,750 feet (3.9 miles) of force mains and some ill-defined combination of,
2. Two more (2) lift stations; one new lift station at the development and 1 new regional lift station with approximately 5-miles of force main.

The concepts, developed for full build-out service of LBL Development, are estimated to cost somewhere within the range of $25,000,000 to $30,000,000. Crown Point's cost for its gravity system service plan is only $4.6M.

I estimate Winfield's cost for its described WWTP expansion to 4MGD and service to its full requested expanded area is $160,000,000, including WWTP capacity expansion ($21.6M), and wastewater collection system improvements ($139M). The wastewater collection system improvements presented include three (3) lift stations and the very long and costly distances of approximately 39,000 feet (7.4-miles) of pumped

force mains, and gravity sewers which fight up hill resulting in excessive sewer main installation depths, in some places deeper than 85-feet.

Additionally, the lift station layouts proposed by Winfield are sometimes referred to as a "daisy chain" lift station system, as one pump station pumps to the next which pumps to the next and then to the next. Any capacity improvements upstream will domino through the downstream lift stations causing additionally required capacity improvements, i.e. subsequent duplicate mains or upsized replacement.

Winfield's lack of planning to serve the expansion area is shocking. Had they created a complete engineering plan it would have demonstrated the impracticality of Winfield's current plan presented to the Commission. I see Winfield's plan as a cover for its true motivation, to prevent expansion of Crown Point's sewer service and to exert control over future development.

Q8. MR. DUFFY TESTIFIED AT PG. 4 OF HIS TESTIMONY THAT HE BELIEVES WINFIELD CAN PROVIDE SAFE, EFFICIENT AND COST-EFFECTIVE SERVICE TO THE WINFIELD SERVICE TERRITORY. DO YOU HAVE ANY COMMENTS OR CONCERNS WITH MR. DUFFY'S TESTIMONY, SPECIFICALLY, REGARDING WINFIELD'S ABILITY TO SERVE THE LBL DEVELOPMENT IN THE DISPUTED AREA.

A8. Yes, I do. I will first address the lack of industry standard planning documents in Mr. Duffy's conveyance plan for service for the entire Winfield territory request. Next, I will discuss Winfield's vague plan for conveyance of sewage from the LBL Development. Finally, I will discuss Mr. Duffy's extraordinarily expensive and inefficient plan to

service the overall extent of the requested service territory which includes the Disputed Area.

Lack of Industry Standard Planning Documents

It is standard engineering practice to assemble a preliminary engineering report (PER) as the first step in the process of assessing a sewer utility and its needs. Winfield's failure to assemble the appropriately detailed planning documents injects significant risk of inefficacy, future need for redundant upsized facilities, delays or inability to meet future customer growth, exorbitant cost and lack of financial feasibility. The need for this standard of assembling of PERs is so basic that several agencies both State and Federal that offer low-cost financing require planning documents with specified content and quantification to clearly outline the issues, alternative solutions, and rationally support proposed projects. Indiana Finance Authority – State Revolving Loan Fund (IFA-SRF), United States Department of Agriculture Rural Development (USDA-RD), and the Office of Community and Rural Affairs (OCRA) require assembly of a PER with defined content as the basis for solicitation of financing for capital improvements projects. None of these agencies would finance Winfield's suggested improvements due to the significant deficiencies and lack of critical information in Winfield's planning.

Winfield lacks critically important Utility planning reports. Utility planning reports provide long-term planning framework to manage infrastructure and operations effectively and efficiently. This is why they are required by EPA's Sustainability Policy which emphasizes the importance of robust planning. Proper planning can ensure the investments are the best choice among alternative options and are cost-effective over the life cycle of improvements. Proper planning is also used to outline the financial strategy

to ensure the investments are reasonably funded, of reasonable cost and the facilities can be properly operated, maintained and replaced over time. Winfield seriously lacks proper planning.

Proper planning includes an assessment of existing facilities, a defined planning area, growth projections in that defined planning area, flow projections based on the growth projections for that planning area, a range of alternatives to provide infrastructure necessary to support utility service, evaluation of the alternatives on both a monetary and non-monetary basis, recommended alternative improvements, costs for the recommended improvements projects, timelines with measurable milestones for implementation of recommended improvements projects, and financing considerations (including potential impact on rates). Winfield has no solid plan. It has proposed to rely on short-term flexibility rather than fully informed long-term planning. Winfield's proposals look more like a forced effort to control land area rather than to realistically engineer at reasonable cost and with certainty provide vital public sewer service necessary to promote development in an important economic development area.

The information offered by Winfield to identify proposed means of servicing the Disputed Area, and the entire requested expanded service area, is far from meeting proper planning criteria, wholly inadequate and interjects significant financial and operational risks.

Winfield's Plan for Conveyance of Sewage from LBL Development

Winfield proposed two (2) options to convey full buildout flows of the LBL Development to Winfield's existing Wastewater Treatment Plant ("WWTP"). I have assembled cost estimates for these options. These options are estimated to cost $24.9M

and $29.70M respectively. In comparison, the option Crown Point coordinated with LBL to convey flow to Crown Point's new SE WWTP is estimated to cost $4.6M. These and my other Winfield / Crown Point cost comparisons are summarized in my Exhibits 4-1, 4-2, and 4-3. With a recently acquired easement Crown Point eliminated one of the three planned lift stations, lowering its Phase 4 Collection System Improvements cost. This eliminated Lift Station, the 129th Avenue Lift Station, was to redirect flows from the south-east quadrant of Crown Point and receive and convey flows from the south and east expansion in service territory (excluding LBL Development). LBL Development flow is also conveyed to Crown Point's WWTP via a gravity sewer.

Winfield's Plan to Serve Entire Extent of Winfield Requested Service Territory

The Winfield concept for lift stations, force mains and gravity sewers within the entire Winfield requested service territory has an estimated cost of $139M. Not only is it cost prohibitive, but the gravity sewer concepts are ill-conceived, with stretches of gravity sewer flowing contrary to existing grade requiring untenable sewer burial depths in excess of 85-feet. The impracticality of such an installation is demonstrated by the Westlake Pipe Technical Bulletin on Burial Depth Guidance, which only provides burial depths up to 50 feet for PVC pipe. The construction, excavation, safety measures and ground water complications for such extreme depths are extremely significant, and, generally, prohibitively expensive.

The Winfield Lift Station system concept relies upon "daisy-chained" lift stations (i.e. lift stations pumping to other lift stations which span more than 5-miles of sanitary sewer force mains to the existing WWTP). This construct can have a domino effect on capacity upgrade upstream requirements. As downstream flows increase, not only do the

downstream receiving lift stations require upgrade but commensurate upgrades are then required in upstream lift stations and force mains. This represents a very inefficient design with high probability for costly and repetitive improvements requirements overtime that do not optimize use of resources.

Q9. PLEASE BRIEFLY EXPLAIN GRAVITY SEWER CONVEYANCE SYSTEMS AND LIFT STATION AND FORCE MAIN CONVEYANCE SYSTEMS, CORRESPONDING DESIGN CONSIDERATIONS, AND HOW THEY DIFFER.

A9. A gravity sewer conveyance system is a sloped pipe in the ground. The slope of the pipe maintains a scour velocity to ensure materials do not settle out in the pipe and create blockages and odors. The10-States Standards and Indiana Administrative Code require gravity sewer pipe scour velocities to meet or exceed 2 ft/sec. Gravity sewers empty wastewater flows at a set velocity from the starting location to where it discharges. Sewage does not sit, or reside, in the gravity sewer. For this reason, gravity sewers can be sized to the diameter needed for ultimate build-out flow but readily accommodate a range of flows (low to high) because it all drains at the same velocity. Gravity sewers are by far the preferred means of flow collection and conveyance. Gravity sewers have a much lower installation cost compared to a lift station and force main conveyance system. Gravity sewers have low operation and maintenance costs, a long useful life, the contents remain aerobic – devoid of anaerobic offensive odors and corrosivity, and there is no concern with accommodating varying flow ranges (i.e. similar to what will occur at the LBL Development when they first start building homes and have very little flow to when all the homes are built and they have much greater flow).

A lift station and force main conveyance system relies on a wet well i.e. a deep pit, pumps, level sensors, instrumentation, controls, and electricity. For a "submersible" lift station, the wet well contains the pump(s). The wet well fills with sewage. Once the wet well reaches a set level (i.e. pumps are submerged) the pumps turn on and push the wastewater in the wet well through a pressurized pipe called a force main. The force main is routed to its point of discharge.

Lift stations and force mains must take into consideration the range of flows received. The 10-States Standards also recommends velocity in a force main to equal or exceed 2 ft/sec. to maintain scour in the force main and avoid particulate settling out in the pipe. Flow equals velocity times area. So when you have small flows and need to maintain a scouring velocity minimum of 2 ft/sec. the only thing you have control over is the area, in other words pipe diameter. So, you put smaller diameter pipe in for lower flows and then as flows increase the velocity in those smaller diameter pipes increase to the point you then need other pumps and larger force mains to accommodate higher flows. The future need for additional pumps and larger force mains are one reason why lift station / force main design like Winfield's proposal is much less efficient and more costly than gravity systems like Crown Point's plan.

For lift stations with longer force mains, like Winfield's proposal, it is standard engineering practice in a situation like LBL Development to have multiple sized pumps and force mains run to the same point of discharge. In some cases, as flows increase, the initially smaller sized pumps and force mains are required to be abandoned and replaced with larger sized pumps and force mains. The force main content is also at an air deficit i.e. a full pipe under pressure with no air within (unlike gravity sewer which is exposed to

air as the sewage flows down grade). Without air, wastewater becomes anaerobic, creating offensive odors and corrosive liquid and gas. This in turn creates a much more difficult waste to treat and impacts useful life of the infrastructure it comes into contact with. Force main design considerations include the length of pipe, the pipe diameter and corresponding storage volume in the pipe.

For a 12-inch pipe 1-mile in length the storage volume in the pipe is 31,018 gallons. Each home generates 310 gallons per day. It would take wastewater contribution from 100 homes over the entire course of the day (at the IAC specified wastewater generation rates of 310 gallons per home per day) to create enough wastewater to simply fill the force main. It would then take another 100 homes worth of flow over the course of the day to completely exchange the flow in the force main, i.e. empty the force main content. The longer the force main and the larger the pipe diameter the more flow it takes to exchange the waste out of the air deficient force main to point of discharge. This is why many lift stations struggle with odors and hydrogen sulfide formation, referred to as going septic, during initial low flows. If the waste is in the force main for too long, it will go septic and stink.

Q10. WITH ALL THESE ISSUES AND DESIGN CONSIDERATIONS ASSOCIATED WITH LIFT STATIONS WHY WOULD ANYONE CHOOSE TO INSTALL A LIFT STATION OVER A GRAVITY SEWER?

A10. Lift Stations are typically installed in locations where topography does not support the ability to use gravity sewers. If you are flowing contrary to grade (i.e. uphill), gravity sewer depths can become unreasonably deep, such as those proposed by Winfield. The deeper the gravity sewer the more cost it is to construct the gravity sewer and the less

viable the gravity sewer installation becomes. Lift stations are the last resort to flow sewage.

Q11. PLEASE BRIEFLY SUMMARIZE WINFIELD'S TWO (2) PROPOSED OPTIONS FOR THE CONVEYANCE OF FULL BUILDOUT FLOWS FROM THE LBL DEVELOPMENT TO WINFIELD'S EXISTING WWTP.

A11. Winfield's descriptions are vague, imprecise and have changed over the course of this case. I will point out the deficiencies of Winfield's two (2) current alternatives:

1. Install a new lift station at the LBL Development, run force main to the existing Gibson Street Lift Station which pumps flow to the existing 117th Avenue Lift Station which then discharges to the existing WWTP. I refer to this alternative as Alternative 1.
2. Install a new lift station at the LBL Development, run force main to a new "regional" lift station which then routes flow through a new force main to the existing WWTP, total distance approximately 5 miles! I refer to this alternative as Alternative 2.

For Alternative 1, available capacities are limited in the existing lift stations so lift station capacity improvements would be required. For Alternative 2, the new regional lift station is identified by Winfield has dual use, meaning it will not only pump flows from the LBL Development but also flows from the entirety of the Winfield requested expansion in service territory. Alternative 2 illustrates flows from LBL Development being pumped to proposed LS #1, flows collected via gravity sewer in Winfield proposed expansion of service territory being routed to proposed LS#2 then pumped to proposed LS#1, and remaining flows from the proposed expansion in service territory collected and conveyed by gravity sewer to proposed LS#1. Proposed LS#1 then pumps all these flows to the Winfield existing WWTP.

Winfield does not have a well-defined plan. Rather Winfield describes what Winfield might do. Winfield indicates it will proceed with Alternative 1 but then may redirect flow from the development to proceed with Alternative 2.

Alternative 1 is initially limited in pumping capacity by the Gibson Street Lift Station. The IDEM construction permit identifies this Lift Station has capacity for a new Taft Middle School and 330 future homes. The school is already connected. In its Response to Crown Point DR 4.20, Winfield said all 330 future homes' capacity remains (i.e. apparently no homes are connected currently). Winfield states it can add a pump and force main to improve this lift station and increase its pumping capacity. This method of improvement would double the lift station capacity rating from 350gpm to 700gpm which would provide additional pumping capacity for 406 homes, for a total of 736 homes pumping capacity. Winfield also acknowledges that LBL Development will require pumping capacity for 3,074 homes. The initial capacity improvements associated with Alternative 1 leave a pumping capacity deficiency for LBL Development of 2,338 homes.

Winfield does not make clear if it intends to make significant improvements at both the Gibson Street Lift Station and 117th Avenue Lift Station to provide this remaining pumping capacity, or if instead, Winfield would pursue Alternative 2.

Q12. DID WINFIELD PROVIDE PROJECT SCOPE AND DETAIL OF WINFIELD ALTERNATIVES TO SERVE FULL BUILD-OUT OF THE LBL DEVELOPMENT SUMMARIZED ABOVE?

A6. No. Neither the project scope nor detail presented by Winfield reflects a project that will serve full build-out of LBL Development. Winfield also presented improvements concepts for the entirety of the Winfield requested expansion in service territory but did

not provide a cost estimate for this and did not even state a cost. Below I will provide more detail on the Winfield Service Alternatives provided by Winfield.

LBL Development Infrastructure Requirements

Initially Winfield's proposal to serve the entirety of its service area, including LBL Development, as described in Mr. Duffy's December 27,2023 testimony, would have required Winfield to install 16,600 feet of force main, 67,530 feet of gravity main, two (2) lift stations and a WWTP capacity upgrade which Crown Point estimated to cost up to $200M. By his Affidavit, filed on April 4, 2024 (subsequently replaced by Mr. Duffy's April 8, 2024 Affidavit), in response to my Affidavit of April 2, 2024, Mr. Duffy then changed Winfield's plan to identify how they would serve LBL Development only and for the first time stated it could provide service to LBL development for $1M through the extension of a 3,000-foot-long force main south from the Gibson Street Lift Station to the northeastern most corner of the LBL Development. In my Counter Affidavit, dated April 15, 2024, I identified capacity concerns with the Gibson Street Lift Station because, according to IDEM records, its capacity was already committed to serving the Taft Middle School and 330 future homes. Winfield then states in its Response to Crown Point DR 4.20 that the maximum available pumping capacity from Gibson Street Lift Station is 330 EDUs, or about 1/10th the planned 3074 EDUs required to serve LBL Development. Winfield then changed its plan as described in Winfield's Responses to Crown Point DRs 1.28, 1.51, 2.13, and 2.23 stating it was their plan to install a lift station at the LBL Development and 9,000 feet of force main from this lift station to the Gibson Street Lift Station. The same Winfield discovery responses indicate the Gibson Street

Lift Station would then have a capacity upgrade performed described as the addition of a pump and parallel force main for a total improvements project cost of $9M.

Winfield failed to mention its suggested $9M project would only result in a doubling of the Gibson Street Lift Station existing pumping capacity (increasing its pumping capacity from 350gpm to 700gpm) and the corresponding ability to pump flow beyond the Winfield stated existing Gibson Street Lift Station capacity of 330 homes by an additional 406 additional homes. The total improved capacity of Gibson Street List Station results in a total pumping capacity availability of 736 homes total. 736 homes is far from the Winfield stated full LBL build out requirement of 3074 EDUs. Winfield DOES NOT state the manner and cost of additional capacity improvements at Gibson Street Lift Station to provide the remaining 2338 EDU pumping capacity; or 2.9MGD! Winfield also failed to clearly and accurately identify the impact the additional 3074 EDUs from LBL Development routed through the Gibson Street Lift Station to and through the 117th Avenue Lift Station will have on the 117th Avenue Lift Station.

Winfield's Response to Crown Point's DR 2.23 states "there will be minor upgrades at the 117th Street Lift Station". Winfield also reaffirms in its Response to Crown Point's DR 2.5 & 2.6 the 117th Street Lift Station and corresponding existing pumping capacity of 2.45MGD is SOLELY dedicated to full build-out of the 117th Avenue planning area which is in Winfield corporate limits. If Winfield routes all flow from the disputed area through Gibson Street Lift Station and 117th Ave Lift Station to the existing Winfield WWTP, Winfield needs plans to expand the 117th Avenue Lift Station by 3074 EDUs for full build-out of LBL Development. It has not so planned. This does not include any additional anticipated growth outside LBL Development but

within the Disputed Territory which would only increase additional pumping capacity improvements and project costs.

For context, 3074 EDUs requires 3.81 MGD pumping capacity. 117th Ave Lift Station is currently rated at 2.45MGD. This facility inclusive of force mains from this facility to the existing WWTP would require capacity improvements on the order of 150%! This is NOT a minor upgrade. This is a significant undertaking with significant corresponding project costs.

The Winfield project would daisy-chain pump flow from Gibson Street Lift Station to and through the 117th Avenue Lift Station to the Existing WWTP and corresponding improvements that may be required to accommodate this increased flow.

Winfield Expanded Service Area Infrastructure Requirements

To service the entirety of the Winfield requested expansion in service territory, Winfield proposes up to 3 lift stations and corresponding force mains to provide yet another "daisy-chain" lift station system. Winfield further proposes the installation of gravity sanitary sewers to collect and convey flows from the expanded service territory to these lift stations. Winfield, however, did not quantify: (1) costs associated with the projects (2) pumping capacities of the lift stations, (3) number and sizes of force mains, (4) diameters of gravity sewer, (5) frequency and number and sizes of manholes. Winfield even neglected looking at and describing existing grade and its impact on the gravity sewer installation. If Winfield reasonably looked at existing grade and the needs associated with gravity sewers, it should have identified stretches of extreme 85-foot burial depth sewers it is proposing along 129th Avenue as a result of their planned layout.

Extreme sewer burial depths are not limited to small run of gravity sewer. Extreme burial depths manifest throughout Winfield's partial gravity sewer improvements concept.

Q13. HAVE YOU CONDUCTED A COST ANALYSIS OF WINFIELD'S TWO (2) ALTERNATIVE SERVICE PROPOSALS AND CROWN POINT'S CORRESPONDING SERVICE PROPOSAL?

A13. Yes, my staff and I prepared estimates of Project Costs for sake of clarity and comparison on how the full build-out of 3074 homes from the LBL Development could be served. We scoped and priced the following alternatives:

1. Crown Point Gravity Sewer Alternative

Crown Point's Improvements Project to provide service to LBL Development (full build-out). See my Exhibit 4-1, Figure 1. This is a 100% gravity sewer from LBL Development to the new SE WWTP. This improvement was pre-coordinated between Crown Point with LBL Development and both Crown Point and LBL Development agree on scope and approach.

2. Winfield Existing Improved Infrastructure Alternative 1

This improvements concept is to transmit flow from LBL Development to Winfield's existing WWTP through the existing and capacity improved Gibson Street Lift Station and the existing and capacity improved 117th Avenue Lift Station; See my Exhibit 4-1, Figure 2.

3. Winfield New Infrastructure Alternative 2

This improvements concept is to transmit flow from LBL Development to Winfield's existing WWTP through a new Regional Lift Station and force main to the existing WWTP. See my Exhibit 4-1 Figure 3.

The improvements projects costs presented in my Exhibit 4-1 Figures 1, 2 and 3 consider only collection and conveyance system improvements. No costs associated with capacity improvements for treatment plant are presented. The three (3) projects costs for sake of comparison are presented in the table below.

Alternative	Cost	% Difference	Reference
Crown Point Gravity Sewer Service to LBL Development	$4,623,098	Low-Cost Alternative	Exhibit 4-1 Figure 1
Winfield Lift Stations and Force Mains (Existing Improved Lift Stations)	$24,984,375	+540%	Exhibit 4-1 Figure 2
Winfield Lift Stations and Force Main (New Lift Stations and Force Mains)	$29,700,000	+624%	Exhibit 4-1 Figure 3

Q14. DO YOU BELIEVE YOUR COST ESTIMATE OF CROWN POINT AND WINFIELD CONVEYANCE SYSTEM ALTERNATIVES FOR LBL DEVELOPMENT ARE ACCURATE?

A14. Yes. The improvements are straight forward. They involve costs associated with defined capacity lift stations and costs associated with defined lengths and defined diameters of force mains. I utilized lift station cost curves adjusting to current day bid environment and I utilized generally acceptable up to date planning estimates of as installed cost per lineal foot by diameter of force mains. The estimates are more than sufficient for planning level purposes and alternative improvements cost comparisons.

If anything, my estimated Winfield costs are low because I assumed the improvements required would be made at once and not phased in over time. That avoids multiple construction projects cost and ignores the inflation that will occur in material and labor costs over time. It is likely if Winfield's ill-conceived concept is pursued the

lift stations and force mains would have phased improvements and multiple force mains to minimize the potential for waste going septic. This too would dramatically increase costs above my estimates.

Q15. WHY WAS THIS EXTENSIVE COST ANALYSIS OF THE WINFIELD CONVEYANCE PLAN ALTERNATIVES NECESSARY?

A15. The analysis was necessary because the information provided by Winfield and corresponding costs are seriously incomplete and misleading. The cost of sewer utility expansion is critically important information. Crown Point sought clear descriptions of the Winfield alternative projects and related costs for review and comparison with Crown Point's anticipated project and cost. Crown Point received ambiguous and non-committal responses failing to clearly depict the magnitude of improvements projects and impacts the expansion of service territory would have on the Winfield Wastewater Utility. Since Winfield did not provide critical cost information, Crown Point had to estimate Winfield's proposed project cost.

Winfield's expansion plan engineering approach is an uncertain hodgepodge combination of potential alternatives to transport wastewater from the LBL Development to the Winfield existing WWTP. It is not a well-thought-out plan with defined growth assumptions and clear chronology of required activities to remain supportive of servicing the LBL Development. The deficient planning would not support traditional financing options and in my opinion is absolutely no way to plan to serve many thousands of new connections and an evolving economic development center.

Q16. PLEASE SUMMARIZE CROWN POINT'S PLAN FOR SERVICING THE LBL DEVELOPMENT – PRESENTED IN YOUR EXHIBIT 4-1, FIGURE 1.

A16. Crown Point has precoordinated with LBL Development an approximate 5000-feet run of gravity sewer from the LBL Development to the Crown Point SE WWTP. Existing grade has been considered in the design and the installation is cost effective and suitable for the range of flows anticipated from LBL Development over time – initial build to full build-out.

The project cost estimate is $4,623,098, about 1/5 to 1/6 the cost of Winfield's plans to serve LBL. The sewer is to extend through the LBL Development south to US 231. The US 231 manhole is located within the disputed territory and will serve as a connection point for future development in the Disputed Area to provide gravity sewer conveyance to the Crown Point SE WWTP. This gravity sewer line extension is presented in my Exhibit 4-3, Figure 5. The gravity sewer line extension is NOT needed for Crown Point to serve LBL Development. The gravity sewer line is planned by LBL Development to convey flows from homes within the development to the north west corner of LBL development. From there flows are conveyed by gravity to the SE WWTP. This line can also be used at the terminal point of the line extension at US 231 to offer gravity sewer conveyance of wastewater to the new SE WWTP for other potential customers within the disputed territory.

Q17. DO YOU HAVE SPECIFIC CONCERNS WITH WINFIELD'S PLAN TO SERVICE LBL DEVELOPMENT IN COMPARISON TO CROWN POINT'S PLAN TO SERVICE LBL DEVELOPMENT? IF SO, WHAT CONCERNS DO YOU HAVE?

A17. Yes. When analyzed these Winfield alternative plans for servicing the LBL Development it makes absolutely no sense to pursue the Winfield concepts for many reasons including:

Project Cost is my first concern. Crown Point's project is less than $1/5^{th}$ the cost of Winfield's project to provide equivalent levels of service to LBL Development. Since Winfield will need to phase the capacity improvements at its lift stations, I suspect the cost savings offered by Crown Point's plan will be even greater due to Winfield's need for inefficient and duplicative conveyance capacity improvements as flow rates for the lift stations are increased and as additional force mains are installed.

Reliability of service is my second concern. The Crown Point proposal is clear in scope and will be installed as one project supportive of initial flows through full build-out flows. The Winfield projects are not clear in scope and likely require phased improvements. The timing of the phased capacity improvements not only introduce cost redundancies but also create potential uncertainty that conveyance capabilities will be in place on the variable time frame that housing developments require service.

Conveyance distance is my third concern. The Crown Point's gravity main will only convey LBL Development flows approximately 5000 feet to point of discharge. This flow will be by gravity so the wastewater in the pipe will remain aerobic.

On the other hand, the Winfield alternative project(s) convey wastewater through force mains across a series of daisy-chained pump stations for **5 times that distance.** When in the force main the wastewater will go anaerobic, creating odors and hydrogen sulfide. Design considerations will need to be made to address the anaerobic waste which will likely include the need for chemical feed. Design provisions will also need to

be made to accommodate the potential corrosive and odorous nature of the wastewater discharged.

Operations, maintenance and replacement (O&M&R) costs are my fourth concern. Crown Point's gravity system and Winfield daisy chain lift station conveyance concepts offer significantly different O&M&R costs. Gravity sewers are generally accepted to have a 75-year useful life. Minimal maintenance of the gravity sewer is required over that time. The only primary maintenance necessary for gravity sewers is the occasional cleaning and potentially sewer lining if years later infiltration becomes an issue. Conversely, lift stations consist of mechanical equipment, require electricity to operate, and must be monitored and have their many components timely maintained to assure consistent conveyance capabilities.

Lift Stations have pumps, motors, instruments, control systems, switches, floats and valves. These items are all failure prone. These mechanical systems have a useful life of only 15 years. Pumps and controls require electricity for their operation. Power backup is also required in case of electrical service failure. Monthly inspections of lift stations are required (considered best practice) and typically include cleaning of the wet well, examination of pump impellers and seals, testing of valves, inspection of electrical connections and controls, verification of floats or other means of level sensing, etc. Pumps can also clog, which then necessitates timely reaction to address and clear the clog and avoid sewer backup and/or wastewater overflow.

The need to pretreat the waste is my fifth concern. The Crown Point Project, being gravity, will deliver aerobic waste to the Crown Point new SE WWTP. No pretreatment at the WWTP will be required. The Winfield Projects, being pumps and

force mains over long distances, have potential for discharging anaerobic wastewater to the Winfield existing WWTP. This wastewater could be highly odorous and laden with Hydrogen Sulfide – which is very corrosive. Pretreatment would then be required to address the anerobic waste before it is processed through the WWTP.

Limited expansion potential is my sixth concern. Unlike Crown Point's plan, Winfield's plan is not supportive of expanding service to the remainder of the Disputed Area. Crown Point's gravity sewer alternative has been coordinated with the developer and will be designed to allow for extension of the gravity sewer from north to south through the LBL Development all the way to US 231. This provides project and cost synergies. A convenient future connection location to receive wastewater flow for additional developments along the southern extent of the disputed territory is afforded. Winfield, on the other hand, will require an additional lift station along US 231, long runs of force mains, and continual daisy-chain driven capacity upgrades of its downstream infrastructure, primarily Proposed Lift Station No. 1.

Gravity flow vs. force mains is my seventh concern. The Crown Point plan uses gravity sewers, generally considered the preferential means of wastewater flow conveyance when possible. Gravity flow eliminates or minimizes the use of costly lift stations that require ongoing maintenance, use material amounts of electricity and can present a risk of failure during power outages or pump failures / clogging. Force mains similarly require more maintenance than gravity mains as air relief valves are often required placed at high and low points on the force main presenting an additional on-going mechanical maintenance items and potential location of failure and subsequent discharge of raw sewage. The Winfield Projects will use combinations of lift stations and

force mains. Unlike Crown Point's gravity sewers, which can effectively carry flow ranging from the first home connected to full build-out due to slope of the pipe, Winfield's proposed lift stations and force mains cannot accommodate such variable flows. Lift stations and force mains must be designed and built to accommodate specific and limited ranges of flows because of the need for scouring velocities in the pipe from the pumps. The LBL Development will grow its wastewater peak pumping capacity requirement flow from 0 gpd to 3.8Mgal/day. This would require Winfield to install a complex combination of pumps and force mains to maintain scour velocities as the LBL Development grows. The proposed force mains will require odor control facilities and likely chemical feed facilities to address the long residence times in the pipe and the likely septic nature of the waste. Additional pretreatment facilities are also probable at the existing WWTP to receive the anaerobic, corrosive and odorous wastewater and make it suitable for processing through the WWTP.

Q18. AS A PROFESSIONAL ENGINEER, UNDER WHAT CIRCUMSTANCES COULD YOU CONSIDER USING THE NEW LIFT STATION, INCREASED CAPACITY LIFT STATIONS, UNDERSIZED MAINS, FORCED MAIN, STAIR STEPPING CONVEYANCE SYSTEM WINFIELD HAS PROPOSED TO SERVICE LBL?

A18. Only as an absolute last resort where there was no other less costly and less complex alternative. If this Winfield phased improvements approach inclusive of multiple lift stations, and miles of redundant force main runs were the only means of getting desperately needed sewer service to an environmentally troubled area or getting service to an entity that did not care what the capital and O&M costs might be, could I even

begin to consider recommending this alternative. I view it as desperate, ill-conceived concepts presented by Winfield with the intent to control development in both the Disputed Territory and entirety of Winfield's requested expansion of service territory in totality rather than an efficient engineering plan for providing public sewer service.

Winfield's plan is certainly not viable when the alternative low-cost Crown Point gravity system is available.

Q19. MR. DUFFY TESTIFIED AT PG. 4 OF HIS TESTIMONY THAT HE BELIEVES WINFIELD CAN PROVIDE SAFE, EFFICIENT AND COST-EFFECTIVE SERVICE TO THE ENTIRE WINFIELD SERVICE TERRITORY. DO YOU HAVE ANY COMMENTS OR CONCERNS WITH MR. DUFFY'S TESTIMONY AS IT APPLIES TO THE ENTIRE EXTENT OF THE PROPOSED WINFIELD SERVICE TERRITORY ("WINFIELD EXPANSION TERRITORY")?

A19. I disagree with him. Given its lack of critical planning, its very high, initial and on-going cost daisy chain of lift stations and force mains, its uphill battle to get sewage to its inappropriately located WWTP and the future costs from redundant facilities needed to meet increased future flows, in my opinion, Winfield is not capable of providing efficient and cost effective service to LBL Development let alone the entirety of the Winfield Requested Expansion Territory.

Mr. Duffy's proposed collection and conveyance system improvements, to convey flow from the entire Winfield Expansion Territory to Winfield's existing WWTP, is presented in my Exhibit 4-2, Figure 1 with my estimate of probable project costs for collection system improvements alone of $139,089,500. This estimate does not consider

treatment capacity improvements costs necessary to accommodate the future full build-out flows.

Full build out flows based on Winfield provided developable acres (3794 acres) and Winfield's provided anticipated housing density (2 homes/acre) would be 2.4 MGD. Water Reuse Foundation publishes cost curves for WWTPs and adjusted for inflation to 2025 identify these cost curves identify a corresponding cost of treatment facilities to be between $9/gal and $10/gal. Providing Mr. Lin the benefit of the doubt and assuming his 2.4MGD WWTP expansion would be efficient and cost $9/gal, the additional 2.4 MGD capacity required to service the Winfield requested Expansion in Service Territory would cost $21.6M.

The total cost of improvements projects, both collection and treatment, to serve Winfield requested expansion to its service area based on the Winfield plan for its collection system and Winfield's projected needs for the expansion in service territory at full build-out, would therefore be estimated to cost $160M. This cost would clearly have a significant impact on user rates and/or will dissuade future development within this area if the costs are expected to be the responsibility of future developments within this area.

Further, I examined Mr. Duffy's proposed sewer layouts with respect to readily available grading contour information. Mr. Duffy's proposed sewer conveyance layout is not even reasonably constructable. Sewer depths in areas are identified to be 85-feet deep. My cost estimate for this conveyance system project is conservative, it assumes the sewers to be constructable and generally installed 15 to 20-foot in depth. If this concept is actually advanced to a project, then corresponding cost multipliers would be required, increasing my $139M estimate.

Q20. WHY ARE YOU COMMENTING ON WINFIELD'S PROPOSED PROVISION SEWER SERVICE TO THE WINFIELD EXPANSION TERRITORY OUTSIDE OF THE DISPUTED AREA, WHEN ONLY THE DISPUTED AREA IS CONTESTED?

A20. For two primary reasons. First, it is important to understand Winfield's infrastructure costs to serve the entire Winfield Expansion Territory because those costs will drive Winfield's future rates and/or other customer costs in the Disputed Area. Second, my comments demonstrate the unreliability of Mr. Duffy's statements that Winfield can provide efficient and cost-effective service to the Winfield Expansion Territory, which includes the Disputed Area. Their service concept is neither efficient nor cost-effective for the many reasons I previously stated. Further, as previously discussed, certain of Winfield's infrastructure proposals are not technically feasible and others so ill-defined as to defy confirmation.

Q21. PLEASE BRIEFLY DESCRIBE WINFIELD'S PROPOSED WASTEWATER COLLECTION AND CONVEYANCE SYSTEM TO CONVEY SEWER FLOW FROM THE FULL WINFIELD EXPANSION TERRITORY TO THE EXISTING WINFIELD WWTP.

A21. Winfield's proposed collection and conveyance system is illustrated in my attached Exhibit 4-2, Figure 1. The system is entirely dependent upon three (3) lift stations and the very long and costly distances of approximately 39,000 feet (7.4-miles) of pumped force main. It is a "daisy chain" lift station system. The capacity of the upstream lift stations must remain equal or greater than the capacity of the downstream lift stations. In

Winfield's plan, if capacity requirements at either, or both, proposed lift station #3 or proposed lift station #2 increase, then not only do these lift stations require capacity upgrade improvements, but also any remaining upstream lift stations would need revisited to determine if they too require capacity improvement upgrades.

The proposed new lift stations convey flow to Winfield's existing WWTP.

- Proposed new LS #2 is located on US 231 and receives flow from most of the expanded service territory (but not LBL Development flow). Proposed LS #2 would then pump to Proposed new LS #1 through 12,000 feet (2.3 miles) of force main.
- Proposed new LS #3 (the LBL Development Lift Station) pumps flow from LBL Development to Proposed Gibson Street Lift Station and/or new LS #1. 9000 feet (1.7miles) of force main is required to transmit flow from new LS #3 to the Gibson Street Lift Station. 12,500 feet (2.4 miles) of force main is required to transmit flow from New Lift Station No. 3 to new LS #1. It is unlikely that flow will be "diverted" from Gibson Street Lift Station to new LS #1. It is more likely that two (2) separate lift stations and two (2) separate runs of force mains would be installed routing flows to both Gibson Street Lift Station and new LS #1. The Alternative is to abandon the LS #3 to Gibson Street LS infrastructure and install new infrastructure to convey all this flow to new LS #1.
- Proposed new LS #1 receives flows from Proposed LS #2 and Proposed LS #3. The service concept also shows runs of proposed new gravity sewer throughout the Winfield requested expansion to service territory. These

gravity sanitary sewers are to collect flows generated throughout the Winfield requested expansion in service territory and route those flows to either new Lift Station #1 or new Lift Station #2. As I previously noted, these gravity sewers are not viable with runs of sewer requiring installation depths on the order of 85-feet. Proposed new LS #1 then pumps all the flow from the Winfield expansion in service territory (less whatever flow Winfield chooses to route through Gibson Street Lift Station) through 14,500 feet (2.7 miles) of force main to the existing Winfield WWTP.

This is a complicated daisy chain pumping system wrought with inefficiencies and risks. The questionable and tenuous reliability of Winfield's proposed conveyance system is demonstrated by the fact that the system simply will not function without all the Proposed Lift Stations Nos. 1, 2 and 3, and their respective force mains, being in place and operating. In other words, if any of the many components of the complex Winfield system fail, the entire conveyance system fails. Proposed Lift Station No. 1 and its corresponding force main must be in place to convey flows to treatment. Proposed LS #2 and its corresponding force main must be in place to convey flows from US 231 to Proposed LS #1 to treatment. Proposed LS #3 must be in place and its corresponding force main to convey flows from LBL Development to the Gibson Street Lift Station and/or Proposed LS #1 to treatment.

Winfield's complex, continually evolving and maintenance intensive infrastructure improvements concepts to service the expansion of service territory are simply not a reasonable way to promote or serve new area development.

Q22. COULD YOU PLEASE EXPLAIN WHY THE IMPROVEMENTS PROPOSED BY WINFIELD DESCRIBED ABOVE MAY BE PROBLEMATIC WITH RESPECT TO THE DEVELOPMENT OF WINFIELD'S FULL EXPANDED SERVICE TERRITORY.

A227. Demand will start small and grow. Regardless of the number of customers and how low the initial flows are, all three (3) lift stations and all 7-miles of force main must be installed to convey even one gallon of flow from the proposed Winfield expansion area to treatment. There is no cost-effective means to initially install three (3) lift stations and 7-miles of force mains. It will be nearly impossible to maintain aerobic wastewater that is required to be conveyed through 7-miles of force mains let alone the initial small volumes of wastewater. It is not cost effective to continually upgrade these lift stations and force mains as the area grows and demand dictate capacity improvements.

Q23. MR. STONG DID YOU AND YOUR STAFF PERFORM A COMPARATIVE ANALYSIS OF CONVEYANCE AND COLLECTION FACILITIES BASED ON REASONABLE INITIAL DEVELOPMENT SCENARIOS THAT MAY BE POSSIBLE IN THE DISPUTED AREA?

A23. Yes, my Exhibit 4-3 presents an analysis comparing the conveyance and collection facilities of Winfield and Crown Point required to serve a similar initial development scenario on US 231 within the Disputed Area. Comparative costs to provide like service are also provided.

Q24. WHY DID YOU PERFORM THIS ANALYSIS?

A24: Growth does not occur all at once. It starts with initial customers that require utility service. Those initial customers often are not economically served with the ultimate

build-out design concept. Interim concepts with cost and function synergies contributing to the long-term vision for development are required. If you cannot economically provide initial service, there will be no growth, and the area will not develop.

Q25. PLEASE SUMMARIZE YOUR INITIAL DEVELOPMENT CONCEPT AND CORRESPONDING UTILITY REQUIREMENTS ANALYSIS SET FORTH IN EXHIBIT 4-3.

A25 Outside of the known LBL Development, the most likely location for initial development is along the US 231 corridor east of the I-65 exit. This is prime real estate for typical commercial and industrial developments.

The Exhibit 4-3 analysis and Exhibit 4-3 Figures 1, 2, 3, and 4 present a "likely" initial development scenario for purposes of comparing the two (2) potential service providers abilities to meet this need. In this initial development scenario we look at how each community may service two (2) fast food restaurants, a gas station, an industrial park, and a strip retail development in this area along US 231 within the Disputed Territory. Exhibit 4-3 shows options for Crown serving these customers and Winfield serving these customers.

Winfield's daisy-chained lift station system proposed, which it it's "backbone" for service is untenable and will not provide economical service for initial development. This analysis provides details in support of that statement. The project costs for equal level of service for this initial development scenario are summarized below:

1. Crown Point Initial Service Scenario Cost: 4.7M (lowest alternative cost)
2. Winfield Initial Service Scenario Cost: 24.7M (lowest alternative cost)

The Winfield alternative requires 2 lift stations and approximately 5-miles of force main to convey flow to its existing distant uphill WWTP. In this comparison lift station pumping flow rate and force main size is limited. As the area grows, costly redundant lift station and force main infrastructure will be required installed to increase conveyance capacity. With initial service, residence time of sewage in the lift station will necessitate odor control and chemical feed facilities and potentially pretreatment facilities at the Winfield existing WWTP to address the anaerobic waste, all at additional cost.

Crown Point's gravity sanitary sewer conveyance system from the disputed area for initial development will have none of these issues and will be suitable to accommodate growth of the area to full build-out.

Q26. MR. DUFFY TESTIFIED AT PG. 4 OF HIS TESTIMONY THAT THE WINFIELD SERVICE TERRITORY IS A LOGICAL EXTENSION OF THE EXISTING WASTEWATER INFRASTRUCTURE THAT WINFIELD IS OPERATING, MAINTAINING AND USING TO PROVIDE SERVICE TO CUSTOMERS LOCATED IMMEDIATELY ADJACENT TO THE WINFIELD SERVICE TERRITORY AND IS CONSISTENT WITH WINFIELD'S PLANNING EFFORTS AND ACTIVITIES OVER THE LAST 20 YEARS. MR. STONG, DO YOU HAVE ANY COMMENTS OR CONCERNS REGARDING MR. DUFFY'S TESTIMONY?

A26. Yes I do. If serving the proposed Winfield expansion area, which includes the Disputed Area, was a natural extension of Winfield's existing system, Winfield would either have infrastructure within its existing corporate limits capable of receiving flows from outside its current corporate limits and conveying these flows to its existing WWTP, and/or

infrastructure within its existing corporate limits capable of economical upgrades in capacity to receive flow from outside its current corporate limits and conveying these flows to its existing WWTP. Winfield has neither. The many deficiencies in Winfield's plan defy it being a logical extension.

Winfield's collection system consists primarily of sewered subdivisions transmitting flow through small diameter sanitary sewer pipe to several small lift stations that then pump to Winfield's existing WWTP. This type of system is not conducive to an economical outward expansion of wastewater service territory. As the service area expands outward, more costly pump stations and longer runs of force mains are required to extend service, as demonstrated in Winfield's infrastructure improvements concepts which require 3 lift stations and 7-miles of sanitary sewer force mains. The alternative to dedicated lift stations and force mains for the expansion in service territory is to partially service the requested expansion territory through increasing pumping capacity of existing lift stations. These types of projects are seldom cost effective and the corresponding "daisy-chain" of lift stations required to convey flow introduces tremendous inefficiencies for future improvements – as all downstream lift stations and force main will be impacted by increased upstream flows.

If serving the Winfield expansion area, which includes the Disputed Area, was planned over the last 20-years Winfield would have a Sanitary Sewer Master Plan outlining the projects and costs for serving this area. The only Sanitary Sewer Master Plan provided to Crown Point for review was Winfield's January 26, 2016, Sanitary Sewer Master Plan. This document does not address infrastructure needs to serve the requested expansion in service territory.

Winfield's proposed projects described in its 2016, Sanitary Master Plan are limited to the current Winfield corporate limits (its existing service area). The Winfield 2016 Sanitary Master Plan identifies a 20-year Service Area also limited to current Winfield corporate limits. Winfield growth projections within the 2016 Sanitary Master Plan are limited to this planning area – the Winfield corporate limits. All infrastructure improvements in the 2016 Sanitary Master Plan are limited to servicing planned development in Winfield's existing service territory – current Winfield corporate limits.

Winfield's 2016 Sanitary Master Plan specifically notes, "areas in the southwest quadrant of the Town will generally remain rural in nature and that planning of wastewater infrastructure in that area is premature" (See Winfield's 2016 Master Plan Page 9 Section 1.4). How could Winfield have been planning to provide service to the Disputed Area, which is south of the southwest quadrant of the Town when Winfield clearly states in its 2016 Sanitary Master Plan that it is "premature" to plan for infrastructure improvements?

Winfield's 2016 Sanitary Master Plan provides no planning to support expansion of Winfield's sewer service into the southwestern quadrant of Winfield's own existing service territory, Winfield's corporate limits, let alone beyond Winfield's existing corporate limits into the Winfield's requested expansion of service territory which includes the Disputed Area. Winfield's expansion south of its current sanitary service territory is **NOT** a logical extension of existing wastewater infrastructure.

Also, Winfield's 2016 Sanitary Master Plan is currently outdated and error prone. It is almost 10-years old and does not capture recent growth trends realized over the past several years in this area in and near Winfield. This document identifies ultimate

buildout flows to be 1.8MGD; 0.2 MGD higher than Winfield's newly expanded WWTP's rated capacity. If Winfield were really serious about extending sewer service within its corporate limits, no less beyond those limits, a properly updated Sanitary Master Plan for Winfield should have already been completed to demonstrate revised growth projections within existing service territory and throughout the proposed Winfield Expansion Territory.

Such a Sanitary Master Plan document would have identified the current facility conditions, corrective actions required, improvements projects alternatives with clear scopes, costs associated with those alternative improvements, criteria for alternatives selections for required improvements, the selected improvements projects, means of financing the selected improvements projects, schedules associated with those selected improvements projects, and rate impacts to support the updated growth projections over a typical 20-year planning period within Winfield's existing service area, its corporate limits and the Winfield requested expansion area. Good utility management and engineering practice require a municipal sewer utility to have a current Sanitary Master Plan. Yet Winfield does not.

Winfield attempts to reinforce their claim of preplanning through misplaced references to Comprehensive Master Plans dated 2006 and 2023. Comprehensive Plans are not utility Master Plans. Comprehensive plans present a long-range community vision for future growth and development. Comprehensive Plans do not identify utility needs or impacts due to expansion in service territory. Comprehensive Plans establish long-term aspirations and goals for land use. Comprehensive plans do not consider utility improvements required in support of those aspirations.

If Winfield wished to develop an expansion in service territory concept from its 2006 Comprehensive Plan, this would have been contained in the 2016 Sanitary Master Plan. It is not. Notably, however, the 2006 Comprehensive Plan did advise Winfield to limit the use of pump stations because they are expensive to install, and costly to operate and maintain (See Page 21 of the 2006 Comprehensive Master Plan). It appears that lift station admonition has been abandoned.

The 2006 Comprehensive Plan does reference a future land use plan in this document and generally proposes that development occurs in the Niles Ditch watershed, on the south side of existing Winfield Town Limits. However, it also recommends reviewing feasibility of a second wastewater treatment plant, located nearby in the same Niles Ditch watershed to serve this area and notes the Sanitary Sewer Master Plan should be updated to reflect same after adoption of the Comprehensive Plan (See Page 21 of the 2006 Comprehensive Master Plan). But there is no second Winfield treatment plant in the Niles Ditch watershed to serve any expansion southward just as there was no update in the 2016 Sanitary Sewer Master Plan to reflect an intent to expand southward. Winfield's previously recommended second WWTP in the south near Niles Ditch further supports the fact that its current expanded WWTP is poorly located uphill and far away from the Winfield Expansion Area. If Winfield were seriously planning to serve the area to its south it would have installed the second WWTP.

Winfield's 2023 Comprehensive Master Plan only presents the conceptual consideration of development south of its existing corporate limits. This concept is reflected in the "Future Land Use Map" on Page 52 of the 2023 Comprehensive Master Plan. Winfield's concept for development presented in the 2023 Comprehensive Plan,

however, is contrary to the reality of the planned LBL Development. Winfield's 2023 Comprehensive Plan identifies much of this area as "flex industrial". Such conceptual discussions fall far short of the critical planning necessary to serve an expanded service territory including the Disputed Area.

After a Comprehensive Plan is assembled identifying land use conceptual vision, it would be typical to then translate this into a Sanitary Master Plan. Growth projections would be assigned to the envisioned land use and then corresponding infrastructure needs identified over a 20-year planning period. This would be done to progress the concept to required improvements projects and corresponding impact on utility viability for service. Winfield did not do that. It has not established viability for servicing this requested expansion in service territory including the Disputed Area. The foregoing detailed discussion demonstrates that from an infrastructure, operational and planning standpoint service to the Winfield expansion area, which includes the Disputed Area, absolutely is not a logical extension of Winfield's existing service.

Q27 WHAT PROJECT DID MR. DUFFY REFERENCE FROM WINFIELD'S 2016 SANITARY MASTER PLAN?

A27. The project Mr. Duffy referenced from Winfield's 2016 Sanitary Master Plan and claimed to be supportive of this expansion of Winfield's service territory is called the "Southeast Planning Area Future Lift Station #5 (developer funded)". This lift station is described and illustrated on Page 55 of the 2016 Sanitary Sewer Master Plan. The planning area to be served by this lift station is **north of 129th Avenue**. That service area **does NOT include the requested expanded service territory**. That service area is completely within Winfield's corporate limits.

Lift Station #5, described as a Regional Lift Station, is identified to have an ultimate buildout capacity of 1,000 gpm or 1.44 Mgal/day.

The Winfield new Proposed Lift Station No. 1, which is what Mr. Duffy compares to this 2016 Master Plan presented Lift Station #5, has a significantly larger service area, and a much larger full build-out pumping capacity (<10MGD) requirement. The only similarity the 2016 Sanitary Master Plan presented lift station and Mr. Duffy's Proposed Lift Station No. 1 have is approximate location of the lift station.

This is not a logical extension of Winfield's wastewater infrastructure. Mr. Duffy's reference to "Future Lift Station No. 5 is a misplaced comparison to an unrelated project presented in the 2016 Sanitary Master Plan in a failed attempt to claim foresight.

Q28. MR. DUFFY AT PAGE 11-12 OF HIS TESTIMONY DESCRIBES HIS PREFERENCE IS FOR WINFIELD'S SYSTEM PLANNING TO BE FLEXIBLE, MONITOR FLOWS AND MAKE NEW CAPITAL ADDITIONS JUST BEFORE THEY ARE NEEDED. WHAT IS YOUR RESPONSE?

A28. In my opinion it is an excuse to try to cover Winfield's lack of adequate detailed sanitary master planning rather than a rational preference for future sanitary utility improvements. Lack of long-term detailed engineering planning leads to several costly failures. Winfield's plan includes some gravity flow collection systems in its Expansion Area. Gravity sewers should be designed and installed for full build out. When you install a gravity sewer, you install it once and size it for full buildout of a defined planning area the sewer is to provide service. You do not monitor flows and then decide what gravity sewer should be designed and installed.

When you design a lift station, long term planning should identify full build-out pumping needs. The long-term plan then identifies anticipated growth rates and corresponding flow triggers to initiate phase capacity upgrade projects. Rather than "wait and see" you design the lift station so it is readily capable of phased expansion in the future to full build-out needs.

Winfield has not identified full build-out expectations nor have they identified anticipated growth rates. This wait and see approach is not indicative or supportive of best engineering practice. A perfect example is Mr. Duffy's proposed LS #3 pumping to Gibson Street Lift Station and then monitoring flows "to **determine if at some point it makes more sense to route flow to proposed lift station #1 or to continue through the Gibson Street Lift Station."** By using currently available information and proper engineering techniques, any sewer system Engineer can identify a plan and initial schedule for serving a 3074 EDU development at an average development rate of 160 homes per year.

Improvements projects take time to plan, design and construct. At the LBL identified pace of developments, Winfield improvements will be required on-line and operational in Year 2, Year 4 and beyond dependent upon future chosen capacity improvements projects (see below table). Improvements are required planned until an ultimate pumping capacity of 3.8MGD is achieved (this is what is required pumping for a 3074 EDU development).

The initial plan, schedule and corresponding improvements projects costs must be clearly defined. Monitoring growth / flow can then occur to refine schedule and determine if/when the projects require initiation and completion.

Planning Year	Available Gibson Street Lift Station Pumping Capacity	LBL Development Homes Built	Resultant Gibson Street Lift Station Capacity	Notes
1	330 homes	160 homes	170 homes	
2	170 homes	160 homes	10 homes	
Perform 3rd Pump and second force main improvement to increase pumping capacity by 406 homes				
3	416 homes	160 homes	256 homes	
4	256 homes	160 homes	96 homes	
Perform a capacity improvements project to add necessary pumping capability for year 5 through year 10				
5 to 10	896 homes	800 homes	96 homes	
Perform a capacity improvements project to accommodate pumping requirements from year 10 to year 15				
10 to 15	896 homes	800	96 homes	
Perform a capacity improvements project to accommodate pumping requirements for full build-out of 3074 homes				
15 to 20	834 homes	834 homes	0 homes	

Q29. IS WINFIELD'S PLAN FOR SERVING THE PROPOSED WINFIELD SERVICE TERRITORY, INCLUDING THE DISPUTED AREA, REASONABLE AND EFFICIENT?

A29. No. By sound engineering standards I considered it simply a hypothetical outline of untenable possibilities lacking meaningful cost support, not a planned system. I see it as a cursory effort to claim a "plan" to serve the Expansion Territory under the very challenging topography uphill flow conditions. Examples of significant deficiencies include:

- Winfield did not identify wastewater design flows. Design flows are the basis of sizing capital improvements such as lift stations and force mains and gravity sewers.
- Winfield did not identify alternative solutions, nor did it perform a monetary and non-monetary comparison of alternative solutions as basis for project selection.
- Winfield did not identify design parameters for the Lift Station (i.e. how much flow do they need to pump)?
- Winfield did not identify their anticipated phased approach for Lift Station projects. You can't put the full development lift station in place when there are no customers. You need to phase capacities i.e. initially smaller pumps and smaller mains then as more EDUs connect increase their capacity with redundant infrastructure to maintain a reasonable pipe scour flow velocity within the force mains of the Winfield proposed daisy-chain design.
- Winfield did not clearly describe the interdependency of lift stations and service area growth. In Winfield's case, growth to the new proposed LS#3 planning area (i.e. the Disputed Territory) requires improvements to not only proposed LS#3 but also, Gibson Street Lift Station, 117th Avenue Lift Station. If flow is "redirected" to proposed LS#1, proposed LS#3 and proposed LS#1 would require capacity improvements. This is further complicated by Winfield's plan for the proposed LS#2 planning area flow being routed through proposed LS#2 to and through proposed LS#1.
- Winfield did not identify need or consideration to address odor, hydrogen sulfide generation, and pretreatment of anaerobic wastewater.

- Winfield did not provide Project Cost Estimates for performance of necessary improvements.
- Winfield did not provide preliminary schedules for performance of the projects that are required – likely due to Winfield not identifying its proposed projects. These schedules should be assembled based on planning level growth THEN flows can be monitored to determine any schedule adjustments based on increases or decreases in growth realized versus growth planned.
- Winfield did not size the proposed gravity sewer system. Mr. Duffy's depiction of sewer lines on an aerial map is not indicative of good planning. Duffy April 21, 2025 Direct Testimony, Exhibit 8. How much flow will they convey, when this flow is anticipated, how will the installations be economically phased to promote development of this area? Winfield did none of these things.
- Winfield did not consider required gravity sewers installation depths when drawing their sewer lines on the aerial map. Crown Point took readily available topographical grade information for the area (LiDAR), overlayed this on their "plan", maintained minimum burial depths for gravity sewers, and the result – gravity sewer installation depths up to 85-feet deep! This is not viable.

In addition to the lack of basic planning considerations for design, Winfield also has not identified the operations, maintenance, and replacement costs associated with their proposed improvements. Lift Stations have significantly higher annual O&M&R in comparison to gravity sewers. Best engineering practice is to determine project costs AND operation, maintenance and replacement costs, then perform a present worth analysis to identify comparative project costs over the planning period. This is how you

compare project alternatives and make selection of the best project. The electricity required, the labor to maintain the facilities, and the need for ongoing replacement of mechanical equipment with finite life span can significantly add to the overall cost of a project over its useful life.

If Winfield had performed this basic planning, Winfield should have realized that the system proposed results in:

1. Inefficient and untenable gravity sanitary sewer burial depths.
2. Daisy-chain lift station systems that will be cost prohibitive on initial installation.
3. Residence time of sewage (the average time sewage remains in a system before exiting) that will result in septic waste necessitating odor control, hydrogen sulfide formation mitigating chemical feed systems, and pretreatment facilities at the existing WWTP for the anaerobic waste.
4. Operation, maintenance and replacement needs and costs that are not affordable and far exceed current budgets.
5. Excessively high costs.

Before LBL, or other developers, could rationally proceed with development, they will need to know the required improvements projects, timing of these projects, and costs associated with these projects. LBL and other impacted developers would need to assess full build-out projects' costs, and which entities (Winfield, LBL, and other developers) will assume financial responsibilities for these facilities. These defined costs would then need to be considered by LBL and any other impacted developer to determine if inclusion of these costs in their respective ventures maintains project viability.

LBL and other impacted developers would also need to have clearly defined timelines for improvements projects along with clearly defined conveyance capacity limitations associated with the various improvements projects schedules. This is needed to make certain the growth assumptions and corresponding capacity limitations arising from the requirement for incremental conveyance capacity improvements projects are sufficiently conservative to mitigate the risk associated with variable rates of homes constructed.

To say Winfield's ill-defined improvements projects, fall short of the information and detail required to even seriously consider them is a monumental understatement.

Q30. MR. DUFFY TESTIFIED, AT PG. 10 OF HIS TESTIMONY, THAT IT IS HIS UNDERSTANDING THAT CROWN POINT'S EXISTING WASTEWATER TREATMENT PLANT NO LONGER HAS THE CAPACITY TO HANDLE THE FLOWS ANTICIPATED FROM WITHIN THEIR CURRENT MUNICIPAL LIMITS AND THAT CROWN POINT'S NEW WASTEWATER TREATMENT PLANT MAY NOT COME TO FRUITION FOR MANY YEARS. MR. STONG, DO YOU HAVE ANY COMMENTS REGARDING MR. DUFFY'S TESTIMONY?

A28. Mr. Duffy's understanding of both matters is incorrect.

Existing Crown Point WWTP Capacity

Crown Point's dry weather flow to its existing WWTP averages 4.0 MGD. Crown Point's WWTP has a design average flow capacity of 5.2 MGD. 1.2 MGD of remaining dry weather capacity is available at Crown Point's existing WWTP.

Crown Point has wet weather management facilities which it utilizes to address storm events. Further, Crown Point takes into account approved developments within its

sanitary sewer model when assessing capacity to accept new customers. Crown Point uses this model to assess all new development requests to confirm adequate conveyance and treatment capacities will be available if approved.

New Crown Point SE WWTP Project

Crown Point is under a State Judicial Agreement (SJA) with scheduled requirements for completion of this new SE WWTP on or before January 2028. The project will occur and will be completed as required by Crown Point's SJA. Planning for this project was initiated in 2021. A 2-year solicitation and approval process for the antidegradation analysis has occurred and been completed and approved. The Crown Point project has been approved for subsidized financing by the Indiana Finance Authority State Revolving Loan Fund (IFA – SRF). IFA-SRF ranked the Crown Point project #3 out of 37 submitted projects on the State's project priority list. Crown Point has approved rate increases that support this project borrowing. The Crown Point design is on track to support a project award and corresponding execution of construction contract that will provide adequate construction time to complete the work and initiate function of the WWTP by the SJA required date.

Q31. MR. DUFFY TESTIFIED AT PG. 10 OF HIS TESTIMONY THAT WINFIELD OWNS AN EXISTING LIFT STATION, THE GIBSON STREET LIFT STATION, THAT IS WITHIN 3,000 FEET OF THE LBL DEVELOPMENT WHICH HAS SUFFICIENT CAPACITY TO EXTEND INTO THE LBL DEVELOPMENT AND SERVE AS A CONNECTION POINT FOR ALL FLOWS GENERATED FROM THE DISPUTED AREA. MR. STONG, DO YOU HAVE ANY CONCERNS OR

ARE THERE ANY ISSUES WITH WINFIELD'S PROPOSAL TO SERVE THE LBL DEVELOPMENT THROUGH THE GIBSON STREET LIFT STATION?

A31. Yes. This statement is misleading and omits necessary details to fully understand the extent of improvements required. Clarification regarding the Winfield Gibson Street Lift Station project scope and costs were solicited by Crown Point through discovery. This plan changed with time, and some minimal additional details were provided in responses to Discovery Requests. Due to remaining omissions on the summary cost and scope presented by Winfield, I presented details of a $24.7M project required to convey full build-out flow from LBL Development to an improved Gibson Street LS, to an improved 117th Ave LS and then to the existing Winfield WWTP.

Q32. MR. DUFFY TESTIFIED AT PG. 13 OF HIS TESTIMONY THAT WINFIELD'S GIBSON STREET LIFT STATION AND WINFIELD'S PLAN TO SERVE THE PROPOSED WINFIELD SERVICE TERRITORY WILL PLACE WINFIELD IN THE POSITION TO ADDRESS ANY SEPTIC ELIMINATION ISSUES IN AND AROUND THE DISPUTED AREA. MR. STONG, PLEASE COMMENT ON MR. DUFFY'S CONTENTIONS.

A32. Winfield has an approximate 662-acre residential area located in the northeast quadrant of its corporate boundaries that is currently serviced by septic systems. Septic systems typically have a useful life of 15 to 20 years. Winfield incorporated in 1993. It is likely that many of the septic systems in Winfield area are failing, or will fail, over a 20-year sewage utility planning period.

Many septic systems throughout Lake County have failed. This is the reason the Lake County Commissioners have used American Rescue Plan Act (ARPA) funds to

sewer these septic areas and route those flows for treatment to neighboring communities, including the City of Crown Point.

Winfield's 2016 Sanitary Master Plan identified no intention to address the Town's aging septic area located within its own corporate boundaries. For that matter, the 2016 Sanitary Master Plan did not even mention the Town's septic system area (which is equal to about half the acreage of their entire sewered area of Winfield at the time of the 2016 Sanitary Master Plan).

If Winfield had an intention to address this aging septic area and provide sanitary collection, conveyance, and treatment it would have been identified in the 2016 Sanitary Master Plan. Much like if there was an intention to serve the area south of Winfield's corporate limits, it too would have been mentioned in the 2016 Sanitary Master Plan. Even if Winfield was able to address septic elimination issues in and around the Disputed Area, the fact that Winfield has identified no plans to many address aging septic systems within its own municipal boundaries, is a clear indication of Winfield's lack of willingness to do so.

Further, Winfield makes no commitment to sewer aged septic systems inside or outside of Winfield. Mr. Duffy's testimony is carefully crafted to say they would be good stewards of the expanded service territory but to avoid definitive commitment.

Q33. DOES CROWN POINT HAVE THE ABILITY TO ADDRESS SEPTIC ELIMINATION ISSUES IN AND AROUND THE DISPUTED AREA?

A33. Yes, Crown Point has the ability to address septic elimination issues in and around the Disputed Area but more importantly Crown Point has an established track record of doing so and not just alleging capability. Crown Point has eliminated septic issues within

its municipal boundaries and, as a result, has no known septic systems within its service area. Crown Point is also partnered with Lake County in several septic tank elimination projects near Crown Point by accepting the flows from these failed septic systems and providing wastewater treatment.

Q34. MR. DUFFY TESTIFIED THAT WINFIELD DOES NOT NEED TO BUILD A NEW WASTEWATER TREATMENT PLANT TO PROVIDE SERVICE TO THE PROPOSED WINFIELD SERVICE TERRITORY. MR. STONG, PLEASE COMMENT ON MR. DUFFY'S TESTIMONY.

A34. Its 2016 Master Plan identified an alternative for a new WWTP to reduce required pumping distances for development in corporate limits. It was not built. Winfield's WWTP is too distant and at too great an elevation to reasonably connect to and serve its proposed expansion area.

The Winfield 2016 Sanitary Sewer Master Plan identified full buildout flows for Winfield's service area (Corporate Limits) to be 1.8 MGD. Growth in northwest Indiana has accelerated significantly since 2016. In my opinion if Winfield would have updated this 2016 Sanitary Master Plan Winfield would have discovered an increased treatment capacity requirement for Winfield's existing service area (Corporate Limits).

Winfield identifies 3,794 developable acres in the requested Winfield Expansion Territory in its Response to Crown Point DR 1.43. In that same Response Winfield notes an assumption of 2 homes per acre housing density. This housing density noted by Winfield is less than the 2.8 homes per acre illustrated in the LBL Development figure provided by Mr. Duffy in his testimony as Exhibit 10. Given the discrepancy, I will use

both numbers below to identify a range of potential flows from the Winfield requested Expansion Territory.

- 3,794 acres x 2 homes/acre x 310 gpd/home = 2.35 MGD wastewater treatment rqd
- 3,794 acres x 2.8 homes/acre x 310 gpd/home = 3.29 MGD wastewater treatment rqd

To provide service for both full development within Winfield (Corporate Limits) as identified in Winfield's 2016 Sanitary Master Plan, and for the full development in the proposed Winfield Expansion Territory, the treatment capacity required will likely be within the following range of flows:

- 1.8 MGD (corporate limits) + 2.35 MGD (expansion territory) = 4.15 MGD
- 1.8 MGD (corporate limits) + 3.29 MGD (expansion territory) = 5.09 MGD

Winfield has an existing WWTP rated at 1.6MGD. Therefore, Winfield's 1.6 MGD WWTP is inadequate to serve full development of its existing service territory let alone provide service to the full development of the requested expansion in service territory. Contrary to Mr. Duffy's statement above, Winfield will require significant WWTP capacity improvements projects to add capability to treat growth projected both within the existing service territory and throughout the requested expansion of service territory.

Q35. CAN CROWN POINT CURRENTLY SERVE THE DISPUTED AREA?

A35. Yes, and it can do so with gravity flow conveyance. Crown Point's existing WWTP can provide initial service to the Disputed Area within approximately 9 months as I previously testified.

Q36. MR. DUFFY TESTIFIED AT PG. 14 OF HIS TESTIMONY THAT WINFIELD HAS THE TECHNICAL, FINANCIAL AND MANAGERIAL CAPABILITY TO SERVE THE PROPOSED WINFIELD SERVICE TERRITORY, INCLUDING

THE DISPUTED AREA. MR. STONG, DO YOU HAVE ANY COMMENTS REGARDING MR. DUFFY'S TESTIMONY?

A36. I disagree with Mr. Duffy. The issues identified through my review of the Winfield testimony and responses regarding Winfield plans for service cause me to conclude that Winfield is not a serious contender to provide the Disputed Area with sanitary sewer service. Winfield does not have a legitimate plan. What Winfield presents throughout testimony and DR responses is unclear and not well-thought-out.

Winfield contends without knowledge of anticipated developments growth cannot be projected. This assertion is completely incorrect. That is the definition of planning. We take what's known, we project what's anticipated, and we determine options to serve. Winfield has a clear definition of the LBL Development makeup and its needs but still has not provided a clear plan. Had they created such a complete plan it would have demonstrated the impracticality of Winfield's current unreasonable, unacceptably complex and costly concepts presented to the Commission.

Winfield provided, as Petitioner's Exhibit 10 of Mr. Duffy's April 21, 2025, testimony, information illustrating location and extent of the development as well as the number of required users - 3074 EDUs. Winfield further identifies knowledge of an average rate of development for LBL - 160 homes per year. Winfield's Engineers should be capable of clearly scoping planning level improvements alternatives to occur over the duration of the LBL build-out.

To have demonstrated the technical capability to serve the proposed Winfield service territory I would expect:

Planning in General

1. Industry Standard Planning
2. Updated Growth Projections for the entire service area
3. Consideration of Project Alternatives
4. Monetary and Non-Monetary Alternative vetting to aid in selection of improvements projects.
5. Costs and schedules for selected improvements projects

Details for New Infrastructure

1. Proposed sanitary gravity sewers routed with topography consideration to achieve reasonable sanitary sewer installation depths.
2. Gravity sewers sized for service area (full build-out) or indication of full build-out needs and an alternate phased improvements project.
3. Lift Station full build-out capacity requirements identified. Reasonably phased capacity improvements projects to support varying levels of growth.
4. Inclusion of odor control and hydrogen sulfide prevention capabilities within the proposed lift stations scopes and costs.
5. Pretreatment facilities at the existing WWTP for the anticipated septic waste discharge from the lift stations due to long residence times of waste.

Improvements to Existing Infrastructure

1. Clear definition of existing infrastructure service area commitments and capabilities.
2. Proper and thorough scopes and cost assemblies of potential improvements to existing infrastructure.

3. Clear understanding of impacts upstream flows may have on downstream infrastructure and corresponding commensurate improvements in capacity.

None of the basic engineering concepts I would anticipate and have outlined above have been shared with Crown Point. The lack of technical capability conveyed in the Winfield materials provided to Crown Point would be laughable if it were not for my fervent belief that it is done intentionally to obscure a straightforward apples-to-apples comparison between two (2) communities and their corresponding capabilities to serve the Disputed Territory.

Given the abundance of technical shortcomings outlined, I cannot conclude Winfield has the technical capability to ensure a successful outcome of this undertaking. Winfield's management is either unaware of or endorses these obvious and pervasive technical failings. In either event, this situation raises serious concerns regarding Winfield's management capabilities. Further, given the Winfield Improvements concepts presented and my corresponding cost assemblies on Winfield conceptual improvements, Winfield projects also lack financial viability.

Q37. HAS WINFIELD'S SUPPOSED PLAN TO SERVE ITS EXPANSION AREA AND THE DISPUTED AREA REMAINED REASONABLE CONSISTENT?

A37. No, it has not. After Winfield chose to not serve Crown Point with a copy of its December 27, 2023, Petition for Approval of a Regulatory Ordinance, Crown Point found out about it made filings with the Commission to intervene. I prepared supporting affidavits, some of which pointed out the impracticality or impossibility and excessive cost of the Winfield proposed service plan. Thereafter Winfield began the process of

trying to save its poorly designed plan with a series of modifications. I summarize this process below:

Winfield's Original Proposed Plan for Service

When Winfield originally filed its case in December 2023 saying it planned to serve the expansion area by "two large capacity lift stations that can pump wastewater directly to the WWTP" and "gravity sewers that extend out into the Winfield Service Area". Winfield stated that "the backbone for serving the area will be the two lift stations and the proposed sewer force main." Winfield further stated it "can install the proposed facilities in phases depending on the pace and location of development with the Winfield Service Area". Winfield's initial depictions failed to identify the LBL Development (Reference December27, 2023 Pre-filed Direct Testimony and Exhibits of Michael P. Duffy Jr., Professional Engineer).

Then, after Crown Point pointed out in my April 2, 2024, Affidavit the capital costs associated with the installation of 26,600 lineal feet of force main, 67,530 feet of gravity sewer, two lift stations, and required WWTP capacity improvements Winfield modified their engineering plan.

Winfield's First Modification to Original Proposed Plan for Service

On April 8, 2024, Winfield filed a corrected motion to substitute and supplement exhibits. Winfield claimed that the April 4, 2024, Duffy Affidavit "was unfortunately a prior version that also did not include signature of Mr. Duffy." and offered a substituted April 4, 2025, Affidavit from Mr. Duffy as Exhibit 1 of its April 8, 2024, filing. Mr. Duffy's Affidavit identified a "existing lift station approximately four thousand feet (4,000) from the Disputed Area." It further stated, "To serve the Disputed Area, Winfield

will only need to install a lift station in the Disputed Area and force main to the existing Gibson Street Lift Station." at an estimated cost of $1 million dollars and "not the $150-$200 million dollars presented by Crown Point Engineer Stong."

Mr. Duffy's Affidavit further stated that "While my original testimony presented a plan to serve the entire service area, Winfield can easily use its existing lift station and proposed force main described on Exhibit 1 to meet the needs of the Disputed Area if such area develops more quickly than the southern portion of Winfield's proposed service area." and "Winfield's existing lift station depicted on the Affidavit has sufficient capacity to handle additional flows."

Crown Point then obtained the Gibson Street Lift Station design summary from the IDEM VFC. It indicated that this Lift Station was designed for a school and 330 future homes. The school was being served by Winfield, so Crown Point asked how many of these 330 homes are already connected to the lift station and how many of the 330 homes capacity (if any) remains for allocation to the disputed area. Winfield replied in discovery that all 330 homes capacity remains (i.e. no homes are currently connected to this lift station, only the school). Winfield Response to Crown Point DR 4.20.

The Disputed Area contains LBL Development which is identified by Winfield as requiring service for 3074 homes, almost 10 times the maximum available capacity for the Gibson Street Lift Station. Obviously, Winfield cannot "easily use its existing lift station and proposed force main described on Exhibit 1 to meet the needs of the Disputed Area" as alleged by Mr. Duffy. The Disputed Area contains the LBL Development 3074 homes along with additional acreage that will also require service as it develops.

Winfield's Second Modification to Original Proposed Plan for Service

After pointing out these issues to Winfield, Mr. Duffy then "clarified" in his Amended and Restated Pre filed Direct Testimony of April 21, 2025, both "the ability of Winfield to serve its proposed service territory" and "specific facilities necessary to extend service from Winfield's existing facilities to a new development" located within the disputed territory.

In this second modification, it appears that Mr. Duffy "clarifies" his means for servicing the Disputed Area. No longer does Mr. Duffy state "To serve the Disputed Area, Winfield will only need to install a lift station in the Disputed Area and force main to the existing Gibson Street Lift Station." ,as he did in his April 4, 2024 Affidavit. It is now Mr. Duffy's position that "Winfield owns an existing lift station, the Gibson Street Lift Station, that is within 3,000 feet of the LBL Development. The lift station has sufficient capacity to extend into the LBL development and serve as a connection point for all flows generated from this area." Duffy April 21, 2025 Direct Testimony at p. 10. So, this lift station is no longer serving the Disputed Area for a cost of $1M but is now a connection point to service the Disputed Area for all flows generated from this area and "additional capacity can easily be added as development progresses due to a second force main stub that was installed at the Gibson Street Lift Station during the original design and construction." *Id.* at p. 11.

Winfield Clarification on Gibson Street Lift Station Project

So, Crown Point then asked in discovery (Winfield Discovery Response to Crown Point DR 1.51) for details and costs associated with expansion of its collection, conveyance and treatment capabilities. Winfield responded that it was "difficult to estimate with any degree of specificity the cost associated with serving future

developments until Winfield knows to some degree the pace and location of the anticipated development." This is somewhat confusing because Winfield was the one that provided Crown Point with Exhibit 10 in Mr. Duffy's testimony that illustrated the location, extent and size of the LBL Development. Winfield further identified an average development rate of 160-homes.

Regardless, Winfield was able to identify a capacity improvements project for the Gibson Street Lift Station stating that "it would cost $9 million to extend 9,000 feet of force main from the existing Gibson Street Lift Station to the new Lift Station No. 3 on 129th Street" and that this "estimate cost would also include upgrading the pumps within the Gibson Street Lift Station and constructing a new parallel force main from the Gibson Street Lift Station to the 117th Street Lift Station." Winfield Response to Crown Point DR 1.51.

Conclusions

Winfield's proposal went from:

1. Serving the entirety of the requested expansion in service territory for a Crown Point estimated cost of $150-$200M to
2. A less than $1M cost to service the entirety of the "disputed territory" to
3. A $9M cost to serve the "disputed territory" thru the expanded capacity of the Gibson Street Lift Station.

When I took the information at hand to determine how Winfield could transport the flow from the LBL Development it was clear that multiple-phased capacity improvements projects of daisy-chained lift stations would be required. This could be done with:

1. Two (2) new lift stations (proposed LS #3 & #2) and phased capacity improvements.
2. One new lift station (proposed LS #3) and two (2) existing lift stations (Gibson Street Lift Station, and 117th Ave LS). Phased improvements would be required for all 3 lift stations. Significant capacity improvements projects would be required on the existing lift stations; or,
3. A combination of the above two approaches.

Regardless, it will cost several times the $9M project identified by Winfield which they alluded to affording full build-out wastewater conveyance of flows from LBL Development and 5 to 6 times the cost (at minimum) of Crown Point's one Phase complete gravity sewer improvement project.

Further, the operation, maintenance and replacement (O&M&R) annual costs for the Winfield daisy-chain phased lift station improvements projects will eclipse those comparative costs associated with the Crown Point gravity sewer solution.

Also, the Winfield project injects unnecessary and unacceptable risks to timely service compared to the Crown Point gravity sewer alternative. Crown Point's gravity sewer will be installed and conveyance capacity provided from day 1 through full build-out. Winfield will have to perform multiple phased lift station capacity improvements project with inclusion of redundant infrastructure that need initiated and completed in timely manners to assure flows from LBL Development do not exceed flow capabilities of the daisy-chained lift stations.

Finally, daisy-chained lift stations with long force mains for developing properties will manifest odor and hydrogen sulfide corrosivity. Also, force main content will go septic and potentially require inclusion of pre-treatment facilities at the WWTP. None of this is of concern or applicable to Crown Point's gravity sewer solution.

Q38. MR. STONG PLEASE SUMMARIZE YOUR CONCERNS REGARDING WINFIELD'S PROPOSED WASTEWATER SERVICE TO THE WINFIELD REQUESTED EXPANSION AREA, INCLUDING THE DISPUTED AREA, INCLUDING THOSE RELATED TO MR. LIN'S DIRECT TESTIMONY.

A38. Based on the many concerns discussed herein I conclude, Winfield is not able to efficiently and reliably provide sewer treatment service to the proposed Winfield expansion area, including the more challenging Disputed Area. Winfield's poor or non-existent planning plagues all of its treatment activities and proposals. Winfield's 0.8 MGD to 1.6 MGD WWTP expansion was so ill-timed because of poor planning that it resulted in an oversized WWTP with likely idle infrastructure potentially causing facilities degradation. At the other end of the spectrum, even with Winfield's ill-planned and speculative future 4MGD WWTP expansion, Winfield would not have the treatment capacity to serve its requested expansion area at buildout demand. Winfield's suggested monitor-and-act-at-80% policy is inadequate to timely build new treatment facilities. Winfield has no plan, and no treatment reservation, for dealing with the large community of aging septic systems within its own boundaries. Even if Winfield had the financial and managerial ability, it does not have the technical planning in place to ensure the timely

and efficient provision of wastewater treatment service to the proposed Winfield expansion area, which includes the Disputed Area.

Q39. MR. LIN TESTIFIED AT PG. 3 OF HIS TESTIMONY THAT HE BELIEVES WINFIELD WILL BE ABLE TO TREAT THE ANTICIPATED FLOWS FROM THE PROPOSED WINFIELD SERVICE TERRITORY ("WINFIELD EXPANSION TERRITORY"). MR. STONG, DO YOU HAVE ANY COMMENTS TO MR. LIN'S TESTIMONY?

A39. I do. The facts provided by Winfield do not support Mr. Lin's belief. Winfield's 2016 Sanitary Master Plan identifies an ultimate buildout of Winfield's existing service area, i.e. within its corporate limits, resulting in a wastewater treatment requirement of 1.8 MGD. The current WWTP is rated at 1.6 MGD. The current 1.6 MGD Winfield WWTP is deficient in capacity to support 2016 Master Plan identified full build-out flows within Winfield Corporate limits by 200,000 gal/day.

LBL Development is located within Winfield's proposed expansion territory. LBL Development will generate 0.95 MGD of flow at full build-out based on Winfield identified EDUs in Mr. Duffy's Exhibit 10. The full-build-out treatment deficiency for existing corporate limits and LBL Development service area is therefore 1.15MGD (0.2MGD + 0.95 MGD = 1.15MGD.

Winfield expansion territory (including LBL Development) contains 3,794 acres of Developable Area (per Winfield). Winfield identified a housing density expectation of the expansion territory equivalent to 2.0 homes per acre. LBL Development, as presented by Winfield in Mr. Duffy's testimony, exhibit 10, presents a housing density of 2.83 homes per acre. Given this discrepancy, both values will be utilized to identify a

potential range in wastewater treatment capacity required for the full build-out of the expansion service territory:

A. 2.83 homes/acre x 3,794 acres = 10,737 homes

i. 10,737 homes x 310 gal/day/home = 3.32 MGD

B. 2.0 homes/acre x 3,794 acres = 7,588 homes

i. 7,588 homes x 310 gal/day/home = 2.35 MGD

Total wastewater treatment requirements for full build-out of Winfield existing service territory (1.6 MGD) and Winfield requested expansion territory (2.35MGD to 3.32MGD) therefore presents a potential range of 4.15MGD and 5.12MGD. Both values exceed Winfield's recently expanded WWTP which has a treatment capacity of 1.6 MGD. **Conclusions:**

Winfield says it is considering a capacity expansion project at the existing 1.6 MGD WWTP up to 4.0 MGD. Winfield's existing treatment capacity of 1.6 MGD is deficient to treat full buildout of Winfield's existing service territory. Winfield's suggested 4MGD expansion of its existing WWTP is still deficient to treat full buildout flows of Winfield's existing and requested expansion territory; 4.15 MGD to 5.12 MGD.

Q40. MR. LIN TESTIFIED AT PG. 4 OF HIS TESTIMONY THAT UPON WINFIELD'S WASTEWATER TREATMENT PLANT EXPANSION TO 1.6 MGD, WINFIELD WILL HAVE SUFFICIENT CAPACITY TO SERVE THE FLOWS FROM BOTH THE TOWN'S EXISTING MUNICIPAL LIMITS AND THE PROPOSED WINFIELD SERVICE TERRITORY FOR THE FORESEEABLE FUTURE. MR. STONG, DO YOU HAVE ANY COMMENTS ON THIS ASSERTION?

A40. I do. Engineers should not use vague terms like "foreseeable future". This leads to misunderstanding and confusion. Engineers should assemble planning documents with 20-year planning periods. Engineers should project flows over those 20-year planning periods, year by year, and should identify when capacity issues might arise based on those flow projections.

Based on my firm's review of the IDEM virtual file cabinet, from 2016 through 2024, we have identified 3,051 EDUs of sewer capacity added to the Winfield system with a yearly running average of 339 EDUs.

EDUs Added by Year

Year	EDUs Added	Running Total	Running Average
2016	188	188	188
2017	0	188	94
2018	0	188	63
2019	0	188	47
2020	0	188	38
2021	2379	2567	428
2022	464	3031	433
2023	0	3031	379
2024	20	3051	339

This annual average approval rate increases to 716 EDUs/year if you look at a snapshot of more current approval trends.

Year	EDUs Added	Running Total	Running Average
2021	2379	2379	2379
2022	464	2843	1422
2023	0	2843	948
2024	20	2863	716

Winfield's 2016 Sanitary Master Plan identifies growth projections of 120 homes per year over this same time frame. Clearly, 120 homes/year as anticipated by Winfield in the 2016 Sanitary Master Plan is significantly lower than the 339 EDUs approved on average from years 2016 thru 2024 and even lower than the 716 EDUs approved on average over the last 4-years.

LBL Development ("LBL") is in the proposed Winfield expansion territory. Winfield acknowledged that LBL would require 3,074 EDUs and will grow at 160 EDUs/year on average. The 3,051 EDUs approved by Winfield since 2016, and the 3,074 EDUs identified required by the LBL Development correspond to a total treatment design average flow of 1.9MGD:

The Winfield average flow to its existing WWTP is currently 0.41 MGD. These known wastewater flow contributors alone equate to 2.31MGD in wastewater flow requiring treatment. This does not include any other developments that may occur within Winfield Corporate limits that have yet to be considered or approved. Further, this does not include any other developments outside of LBL Development that may occur within Winfield's requested expansion in service territory.

Mr. Lin should perform an updated and standard engineering analysis of the Winfield existing service territory (i.e. corporate limits) AND the Winfield expansion territory, to identify anticipated year by year planning level flows and then correlate this to future WWTP capacity improvements projects schedules to provide information that is far more useful than his unsupported belief that Winfield will "have sufficient capacity to serve the flows from both the Town's existing municipal limits and the proposed Winfield service territory for the foreseeable future".

Winfield does not have existing or preliminary effluent limits (PELs) approved for a WWTP capacity expansion beyond 4MGD. Winfield will require a WWTP expansion beyond 4MGD to treat flows anticipated due to full build-out both within Winfield Corporate Limits and throughout the Winfield requested expansion territory. The growth and corresponding flow projections over a 20-year planning period would afford Winfield the ability to target performance of planning, design, bidding, construction, and commissioning of WWTP capacity improvements projects and other necessary administrative activities (such as soliciting and obtaining approvals and effluent limits for necessary capacity upgrades).

Q41. MR. LIN TESTIFIED ON PG. 4 OF HIS TESTIMONY THAT ON AN AVERAGE DAY, WINFIELD IS CURRENTLY USING ABOUT 50% OF ITS WWTP CAPACITY. ONCE THE WWTP EXPANSION IS COMPLETE ON JUNE 1, 2025, WINFIELD'S WWTP WILL BE RE-RATED TO 1.6 MGD WHICH WILL RESULT IN A RESERVE CAPACITY OF 1.19 MGD. MR. STONG, DO YOU HAVE ANY COMMENTS OR CONCERNS REGARDING THAT TESTIMONY?

A41. I do. Winfield operates a 1.6 MGD activated sludge treatment facility. This facility utilizes a 3-ring oxidation ditch and four (4) secondary clarifiers. Prior to the recent expansion Winfield's 0.8 MGD WWTP consisted of a 2-ring oxidation ditch and two (2) secondary clarifiers.

Based on Winfield's current daily flows, 0.41MGD, it is unlikely that Winfield will be able to operate the third ring of the oxidation ditch. This is due to a lack of food to feed the corresponding biological process as a result of the reactor being oversized for existing flows. It is also unlikely that Winfield will be able to operate all 4 of the

clarifiers. Low flow rates affect sludge settleability. The improvement appears to be ill conceived and poorly timed unless Winfield has information illustrating dramatic growth occurring in the near future. If a significant increase in wastewater flow is not realized, it's likely the new oxidation ditch ring will be required to remain inactive, and both of the two (2) new clarifiers will remain inactive to afford proper treatment. Inactivity of unit treatment processes is detrimental to the useful life as mechanical equipment tends to degrade over extended durations of inactivity. The duration of inactivity for the newly installed infrastructure, however, is unknown since Winfield has failed to provide annual flow projections anticipated over the course of a 20-year planning period.

In addition to my operational concerns as a result of the WWTP capacity improvements project being ill conceived and poorly timed, the oversized WWTP results in unnecessary costs for new infrastructure that will be inactive. Related to Winfield's poor timing of treatment capacity installation, I have longer term concerns regarding Winfield's use of the term "reserve capacity". Winfield's true "reserve capacity" has not been provided. We know existing flows to the WWTP from review of the Monthly Reports of Operations (MROs); 0.41MGD. We know the existing WWTP upon conclusion of the remaining improvements will have a design average flow rating treatment capability of 1.6MGD. We do not know all the commitments that Winfield has made to approved developments for future treatment and we do not know the rate in which these approved developments will translate into wastewater flows to the existing WWTP.

Given the previously identified 3,051 EDUs approved from 2016 through 2024, of which 2863 EDUs were approved as recent as 2021 through 2024, it's probable a large

portion of these EDUs remain unbuilt and true reserve capacity (i.e. WWTP capacity that is currently not allocated to current customers and future approved developments) is up to 945,810 gallons per day less than stated (3,051 EDUs x 310 gal/day = 945,810 gal/day). This does not include other committed EDUs that we have not identified.

To answer this question and provide a more thorough review of Winfield's claims, Crown Point requested information on the number of EDUs Winfield committed to serve within its current corporate boundaries that are not yet served (Crown Point Request to Winfield No. 1.53). Winfield did not give the requested information but instead directed us to the Virtual File Cabinet ("VFD")and the above resultant assessment. The VFD does not identify approved EDUs remaining to be served which was important to Crown Point's inquiry. Without Winfield updating its growth projections, including approved (served and unserved) EDUs and growth rates of those approved EDUs, current available treatment capacity for new customers remains unknown. Therefore, the timing in which Winfield will run out of necessary treatment capacity is undetermined.

Q42. MR. LIN TESTIFIED AT PG. 13 OF HIS TESTIMONY THAT WINFIELD'S WWTP HAS APPROXIMATELY 1.19 MGD OF RESERVE CAPACITY IN JUNE 2025. THE PLANNING AND DESIGN OF FUTURE EXPANSION TO THE PLANT WOULD OCCUR OVER THE NEXT COUPLE OF YEARS TO MAINTAIN ADEQUATE RESERVE CAPACITY IN THE PLANT SO THAT LBL WILL HAVE SERVICE WHEN IT IS NEEDED. MR. STONG, DO YOU HAVE ANY COMMENTS OR CONCERNS WITH THAT TESTIMONY?

A42. Mr. Lin is again providing a generalized, broad-brush statement. Clearly, Winfield does not have a plan. As noted above "reserve capacity" needs to take into consideration approved EDUs committed but yet to be constructed and rate of construction to avoid approving developments in excess of infrastructure capabilities and to avoid approving developments that may come on-line prior to necessary capacity improvements are completed at the existing WWTP. The utility should be tracking "reserve capacity" as rated capacity of the WWTP, less average flow to the WWTP, less anticipated flows from approved EDUs yet to be developed. The utility should also maintain anticipated production rates associated with approvals yet to be constructed to identify annual anticipated impact on its WWTP flows.

Mr. Lin is grossly imprecise by relying on WWTP capacity being planned over "the next couple of years" to assure necessary facilities are complete and operational affording timely wastewater utility service. If Winfield were really planning to serve its requested expansion territory Mr. Lin should already have an analysis that identifies both the rate of anticipated development of the already approved but yet to be contributing EDUs and projected growth rate across the entire planning area (current service area and requested expansion territory) to identify when planning should commence for the next WWTP capacity improvements project. The process of planning through construction project commissioning takes several years' time which must be accounted for within the projects schedule.

A typical schedule for a WWTP Improvements Project is presented below.

1. Planning: 6-months
2. Design: 12-months
3. Permitting 3-months

4.	Bidding	2-months
5.	Construction	18-months
6.	Commissioning	2-months
	Total	43-months

Since it will take 3 to 4 years from the initiation of the planning to the start-up of an increased capacity WWTP, Winfield should already have a refined analysis on reserve capacity identifying legitimate growth projections to allow initiation of the project in time to meet the needs of the service area.

Mr. Lin's 'watch and see' monitoring and 'next couple of years' capacity planning approach is completely inadequate for utility planning and operation. That quality of planning and operation can for example lead to: (1) large areas of aging septic systems experiencing failures within town corporate limits and no planned means to provide wastewater collection, conveyance, and treatment services, (2) belated initiation of project planning activities resulting in exceedances of existing infrastructure capacities prior to new infrastructure being made operational, and (3) premature construction of infrastructure facilities that remain idle for extended periods of time unnecessarily impacting user rates and presenting additional costs for idle facility required repairs.

Q43. MR. LIN TESTIFIED ON PG. 4 OF HIS TESTIMONY THAT WINFIELD WILL MONITOR THE FLOWS FROM ITS PLANT AS NEW DEVELOPMENT OCCURS TO DETERMINE WHEN THE NEXT EXPANSION SHOULD BE INITIATED, DESIGNED, FINANCED, AND COMPLETED. MR. STONG, DO YOU HAVE ANY COMMENTS OR CONCERNS REGARDING THAT TESTIMONY?

A43. Yes. To Mr. Lin's credit, monitoring actual flows is part of the process in determining timing for expansion of infrastructure capacity but it is not in and of itself sufficient. It is standard engineering practice to assemble and maintain a utility master plan. In this utility master plan, a planning area is defined and a baseline for anticipated growth is established over a 20-year planning period.

Once this 20-year growth and flow projection is established for the entirety of the planning area, and planned improvements projects, costs, and schedules are defined, monitoring flow should then occur to afford necessary adjustments in actual versus planned flows realized and corresponding required versus planned schedules for improvements projects. Winfield's Master Plan is almost 10-years old and does not consider providing wastewater treatment outside of its corporate limits. The entirety of the Winfield Expansion Territory, including the Disputed Area, has had no Master Planning performed.

With over 3051 EDUs of approved construction between 2016 and 2024, of which 2863 EDUs were approved over the last 5-years, and with the Winfield defined 3074 EDUs associated with the LBL Development in the disputed territory, Mr. Lin should already be aware of the rate of development for these existing approvals and have corresponding flow projections based on those rates of development completed to initially target improvement dates. But he does not. The wait and see approach as stated is irresponsible and increases risk.

Q44. MR. LIN TESTIFIED AT PG. 4 AND 5 OF HIS TESTIMONY THAT WINFIELD HAS ALREADY PLANNED FOR THE NEXT EXPANSION OF ITS WWTP FROM 1.6 MGD TO 4.0 MGD, AND IT PROVIDED A PROPOSED LAYOUT OF

THE EXPANSION AS PETITIONER'S EXHIBIT 12. MR. STONG, DO YOU HAVE ANY COMMENTS ON THAT TESTIMONY?

A44. Yes. In my opinion this statement is lip service. Mr. Lin did not provide any details to suggest adequate planning has occurred. Mr. Lin provided a conceptual layout in Exhibit 12. The conceptual layout shows one large oxidation ditch, two (2) large secondary clarifiers, an anaerobic tank, and an additional UV Disinfection Channel.

The improvements made in Mr. Lin's Exhibit 12 are supposed to increase treatment capacity by 2.4 MGD. This is a 150% increase in treatment capability from the existing 1.6 MGD WWTP that is currently seeing 0.41 MGD in flow. I hope this is not reflective of Winfield's "plan" for improvements. If so, once built, most of the old WWTP unit processes supportive of its current 1.6 MGD wastewater treatment rating would be required taken off-line so all this flow could be run through the new WWTP infrastructure. Older WWTP infrastructure would sit idle, degrade, and require repairs and/or replacements, once wastewater flows increase significantly affording re-initiation of use of existing treatment unit processes.

An appropriate WWTP expansion plan should be assembled for a 20-year planning period. It would identify the entire planning area, anticipated growth over the planning period, and phased improvements and timing associated with the planned growth (i.e. increase in wastewater flow).

The Exhibit 12 sketch does not represent the likely reality for improvements over a 20-year planning period based upon legitimate growth projections. This sketch is merely a "back-of-napkin" planning concept for a 4 MGD WWTP that is woefully lacking in detail and thought.

Q45. MR. LIN TESTIFIED ON PG. 6 OF HIS TESTIMONY THAT IDEM HAS PRELIMINARILY APPROVED THE EXPANSION OF THE WINFIELD WWTP TO 4.0 MGD AND ATTACHED PETITIONER'S EXHIBIT 14 IN SUPPORT. MR. STONG, DO YOU HAVE ANY COMMENTS ON THIS TESTIMONY?

A45. Yes. Mr. Lin's statement of "preliminarily approved" is unreasonably vague. Exhibit 14 contains IDEM correspondence on Preliminary Effluent Limits, not an "approval". To be clear, Winfield asked IDEM for treatment parameters associated with a capacity upgrade up to 4MGD flow and was provided the letter to identify the treatment parameters. IDEM merely gave Winfield the requirements, **NOT** an approval. Winfield is still required to design and submit the plans and specifications to IDEM to obtain a construction permit and satisfy all other applicable agencies and their corresponding permitting requirements to have actual "approval" to commence with construction to upgrade the WWTP.

Q46. MR. LIN TESTIFIED AT PG. 7 OF HIS TESTIMONY REGARDING WINFIELD'S ABILITY TO EXPAND ITS WWTP BEYOND THE CURRENT 4.0 MGD OF CAPACITY AT ITS CURRENT LOCATION. MR. STONG, DO YOU HAVE ANY COMMENTS OR CONCERNS REGARDING THIS TESTIMONY?

A46. Yes. Again, sufficient information has not been provided by Winfield to confirm Mr. Lin's claim. Preliminary Effluent Limits on quality of water discharged from the WWTP have been solicited for flows up to 4MGD. Without updated Preliminary Effluent Limits for flows beyond 4MGD there is no way to know what treatment facilities would be required as the level of treatment is undefined. This, in addition to the lack of a legitimate fully planned phased WWTP capacity improvements plan, makes it impossible

to confirm or deny facilities footprint requirements will be achieved on the existing WWTP site.

Q47. MR. LIN TESTIFIED AT PG. 8 OF HIS TESTIMONY THAT HE BELIEVES WINFIELD HAS THE FINANCIAL, TECHNICAL, AND MANAGERIAL CAPABILITY TO SERVE THE PROPOSED WINFIELD SERVICE TERRITORY. MR. STONG, DO YOU HAVE ANY COMMENTS OR CONCERNS REGARDING THIS TESTIMONY?

A47. Yes I do.

Mr. Lin has not provided a plan to assess. Mr. Lin has provided a vague concept. Planning requirements for infrastructure improvements are universally known by experienced engineers. As an example of minimum planning requirements, typically utilized Project Funding Agencies such as the SRF, USDA, OCRA all require defined planning level materials inclusive of defined service area, anticipated growth and flow projections, existing infrastructure needs, new infrastructure alternatives, proposed improvements project premised upon monetary and non-monetary considerations, schedule, and rate impact. None of this is provided.

None of these agencies would fund this project with the information provided, leading to concerns regarding financial ability to provide sewer service in the Winfield expansion area, including the Disputed Area. Correspondingly, I cannot conclude Winfield has necessary technical capability, in part because there is minimal if anything of technical content to evaluate. I am also concerned that utility management has not required more through planning.

Q48. MR. LIN TESTIFIED AT PG. 13 AND 14 OF HIS TESTIMONY THAT A PORTION OF LBL'S PROPOSED DEVELOPMENT IS WITHIN WINFIELD'S EXISTING MUNICIPAL LIMITS AND THE REMAINING PORTION IS WITHIN THE WINFIELD SERVICE TERRITORY (WINFIELD EXPANSION TERRITORY). IF CROWN POINT WERE TO SERVE THE PORTION OF THE LBL DEVELOPMENT WITHIN THE WINFIELD SERVICE TERRITORY, THERE WOULD BE TWO DIFFERENT SEWER PROVIDERS WITHIN THE SAME SUBDIVISION OR DEVELOPMENT. SUCH A RESULT WOULD BE DUPLICATIVE, UNNECESSARY, CONFUSING TO DEVELOPERS, AND FRUSTRATING TO FUTURE CUSTOMERS, ESPECIALLY WHEN CONSIDERING THE SIGNIFICANT DIFFERENCE IN RATES AND CHARGES BETWEEN THE TWO PROVIDERS. MR. STONG, DO YOU HAVE ANY COMMENTS OR CONCERNS REGARDING THIS TESTIMONY?

A48. When certainty of service provider for a defined service area occurs, there is no confusion or duplication. Many communities have portions of their community serviced by other utilities. Separate sanitary collection systems can be readily designed by a developer to have separate routes of flow for treatment by contiguous sewage utilities. With proper planning of collection lines there are no inefficiencies associated with correctly splitting a well-planned development conveyance system.

Q49. DOES THAT CONCLUDE YOUR RESPONSIVE TESTIMONY?

A49. Yes.

VERIFICATION

The undersigned affirms under the penalties for perjury that the foregoing testimony is true to the best of his knowledge, information and belief.

Albert Stong, P.E., 10201336

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EXHIBIT 4-1
ANALYSIS

SUBJECT: Servicing the LBL Development
Winfield vs Crown Point Alternative Improvements

Introduction:

Since Winfield refused to provide the requested details and costs associated with Winfield proposed Collection and Conveyance System Improvements Projects inclusive of corresponding projects costs for servicing LBL Development, this analysis has been performed premised upon Commonwealth Engineers, Inc.'s (Commonwealth's) understanding of the collection and conveyance system and corresponding needs. Commonwealth utilized information presented in Winfield Testimony supplemented with relevant information from both IDEM's Virtual File Cabinet (VFC) and information obtained through the Engineer's review of Winfield's 2016 Sanitary Master Plan to identify the anticipated scope of improvements. Commonwealth then assembled Cost Estimate of the presented projects. Crown Point's anticipated improvements project to provide gravity flow conveyance of full build-out LBL Development flow is also presented with corresponding Cost Estimate.

These Cost Estimates are intended to provide a monetary means of comparison between the two (2) alternatives presented by Winfield for servicing full build-out of LBL Development.

Crown Point Wastewater Conveyance System Improvements

Crown Point coordinated with the developer on a gravity sewer wastewater conveyance system from the LBL Development to Crown Point's new Southeast (SE) Wastewater Treatment Plant (WWTP). LBL will sewer its development in a manner that affords gravity sewer extension from the developments to the Crown Point SE WWTP. Crown Point has coordinated the location of gravity sewer connection to its SE WWTP to receive LBL Development flows. The gravity sewer is designed to readily accommodate the range of flows that will manifest from the development on day 1 through full build-out (i.e. low to high). Exhibit 4-1 – Figure 1 attached to this memorandum illustrates the gravity sewer improvements project concept. Engineers **Exhibit 4-1 Figure 1** identifies a Total Project Cost Estimate of: $4,623,098

Winfield Wastewater Conveyance System Improvements

Commonwealth analyzed Winfield's two (2) alternative means of conveying flow from the LBL Development to Winfield's existing WWTP. Winfield did not clearly define scope and cost for full build-out service. Commonwealth outlines project scope and cost below.

Winfield Improvements Projects General Scope

- Winfield Alternative 1:
    - A lift station and force main provided at the LBL development to convey flow from the LBL development to Winfield's existing Gibson Street Lift Station
    - Winfield's existing Gibson Street Lift Station conveys flow to Winfield's Existing 117th Avenue Lift Station
    - Winfield's existing 117th Avenue Lift Station conveys flow to Winfield's existing WWTP.
- Winfield Alternative 2:

- A lift station and force main provided at LBL development to convey flow from the LBL development to a Winfield proposed regional lift station, identified by Winfield as Proposed LS #1.
- Winfield's Proposed LS #1 then routes flow through force main to Winfield's Existing WWTP.

Winfield Improvements Projects Design Parameters

LBL Development is identified by Winfield in Winfield's Exhibit 10 to consist of 3,074 ERUs (EDUs). Winfield's testimony further indicates an understood need to accommodate 160 homes flow per year for the LBL Development. This equates to peak design flow pumping capacity need for the LBL Development of:

- 198,400 gpd (138gpm) per year
- 3,811,760 gpd (2647gpm) for full development of the LBL Subdivision

Winfield Alternative 1

Alternative 1 required scope of work is summarized as follows:

1. Proposed LS #3 (lift station at LBL Development pumping to Gibson Street Lift Station):

   A 2647 GPM firm rated lift station with 16-inch diameter force main is to be provided. The 16-inch force main is sized to maintain scour velocity.

2. Gibson Street Lift Station Improvements Project

   Pumping capacity improvements at Winfield's existing Gibson Street Lift Station site will be required to provide necessary pumping capacity of full build-out flow from LBL Development.

Gibson Street Lift Station has an existing available capacity of 330-homes (284gpm). An additional 2,363 gpm flow is required to equal the Proposed LS #3 rating of 2647 gpm.

3. 117th Avenue Lift Station Improvements Project

   Pumping capacity improvements at Winfield's existing 117th Avenue Lift Station site will be required to accommodate the build-out flow generated by Proposed LS #3 and conveyed through the capacity improved Gibson Street Lift Station.

   Winfield responses to DRs indicate the 117th Avenue planning area flows equal the 117th Avenue Lift Station pumping capacity. Therefore, the entire pumping capacity of LS #3 must be incorporated into this Lift Station's ultimate build-out requirements. A 2647 gpm flow improvement is required.

Gibson Street Lift Station Improvements - Discussion

The existing Gibson Street Lift Station is identified by Winfield in discovery to have existing capacity to accept 330 homes flow (284gpm). The lift station is also identified readily expandable by Winfield through the addition of a third pump and parallel force main. A third like pump and like diameter force main are anticipated. This manner of improvement is indicative of a doubling of the existing Gibson Street Lift Stations pumping capability - from 350gpm to 700gpm. Doubling the existing Gibson Street Lift Stations pumping capacity will provide an additional 350gpm of pumping capacity.

After this improvements project is performed on the Gibson Street Lift Station, there would be a remaining pumping capacity deficit of 2013gpm; (2647 gpm – 284 gpm

– 350 gpm = 2013 gpm). A second improvements project at the Gibson Street Lift Station site would then be required to increase its firm pumping capacity by 2,013 gpm.

117th Avenue Lift Station Improvements

The 117th Avenue Lift Station is designed to accommodate flows within its original 2016 Master Plan planning area (within City Limits). The 117th Avenue Lift Station has a rated peak design flow of 2,446,600 gallons per day (1,700 gpm). The entirety of the proposed Lift Station No. 3 pumping capacity is required added to this Lift Station (i.e. 2647 gpm improvement) because the Gibson Lift station pumps to this lift station.

Cost Estimate

Engineers **Exhibit 4-1 – Figure 2** illustrates the above-described improvements project and presents the project cost estimate of: $24,984,375

Winfield Alternative 2

The understood required scope of work is summarized below:

1. Proposed Lift Station No. 3 (same as Alternative 1 but routed to Proposed Lift Station No. 1 in lieu of Gibson Street Lift Station).
2. Proposed Lift Station No. 1 routed to the Existing WWTP.

Both Lift Station No. 2 and Proposed Lift Station No. 1 will have equivalent full buildout firm pumping capacity requirements for dedicated service to the LBL Development (i.e. 2,647 gpm). Winfield Proposed Lift Station No. 1 is identified by Winfield to be integral to servicing the remainder of the requested expansion in service territory. It is likely that Winfield would identify design provisions for the Proposed Lift Station No. 1 to afford ready

future expansion for this purpose. For purpose of this Cost Estimate, no such increased capacity provisions are considered.

Cost Estimate

Engineers **Exhibit 4-1 – Figure 3** illustrates the above-described improvements projects and presents the cost estimate for these projects: $29,700,000

Conclusions

Due to the lack of adequate planning from Winfield it is difficult to ascertain details of Winfield's intentions for servicing the expanded service territory and more specifically LBL Development.

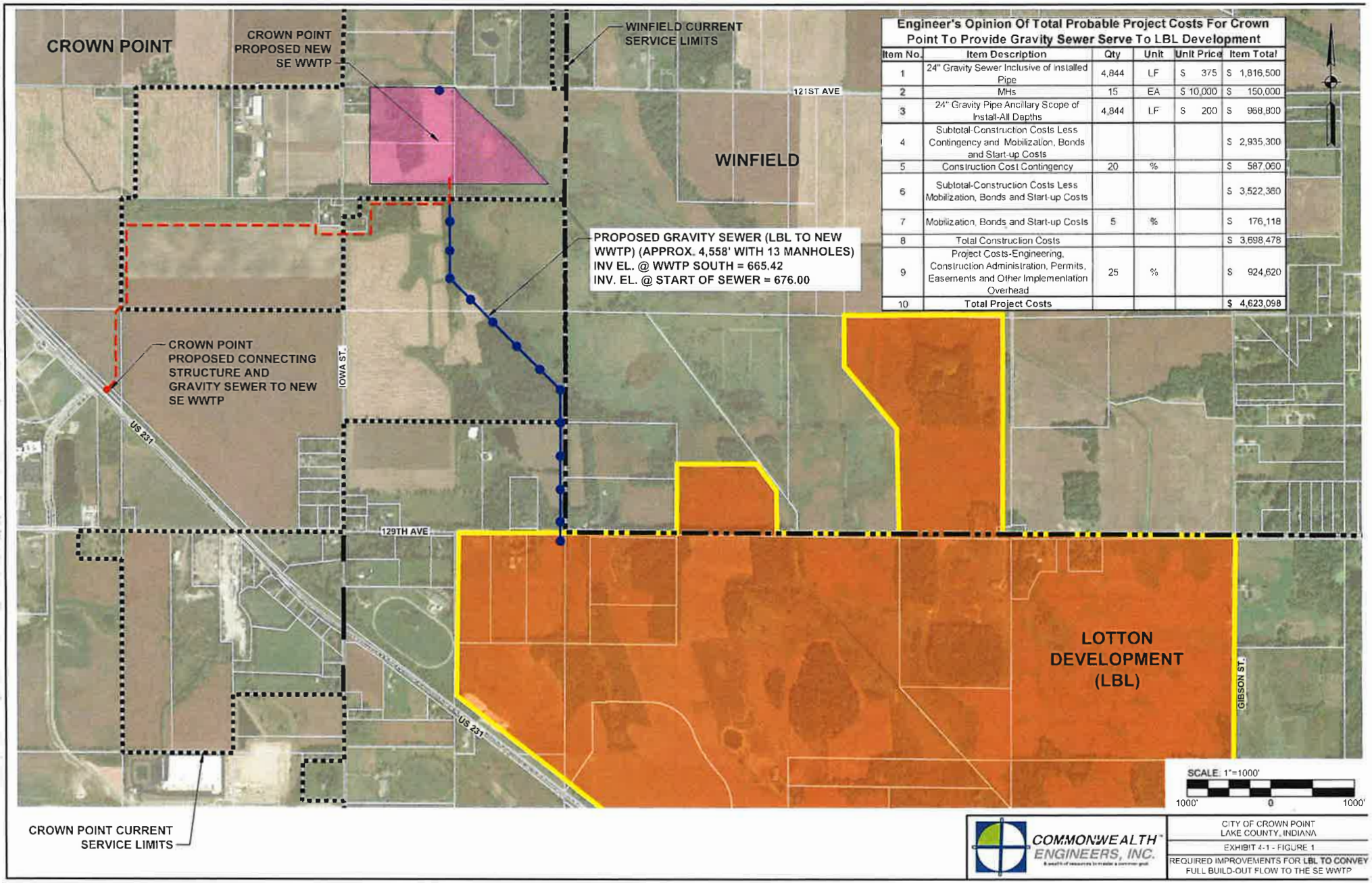
It is standard engineering practice when an expansion to service territory is desired to first update the Sanitary Master Planning to identify:

1. Existing Facility Conditions and Needs.
2. Updated Growth Projections (both within existing service territory and within the expanded service territory) – over a typical 20-year Planning Period.
3. Alternative improvements that are necessary to accommodate the anticipated growth both within the existing service territory and within the requested expansion of service territory.
4. Planning level costs that are associated with the alternative improvements.
5. Recommended Improvement Projects and Schedules for Implementation.
6. Means of Financing the Recommended Projects and corresponding impacts on rates.

Since this information has not been provided by Winfield, the above analysis is the best means available to Crown Point to draw a cost comparison and clarify Winfield's required scope of work for improvements projects to Crown Point's required scope of work.

Clear conclusions result from this analysis and presentation of anticipated improvements project required:

1. It is far more costly to convey flows from LBL Development to Winfield than it is to convey flows from LBL Development to Crown Point.
2. The improvement project to convey flow from LBL Development to Crown Point is a gravity sewer that can be installed immediately upon need and will adequately service LBL Development from initial flow through full build-out.
3. The improvements projects to convey flow from LBL Development to Winfield are pump station and force mains. These pump stations and force main improvements would likely be required phased. They have been priced without phased improvements for ease of understanding. Phasing the improvements will result in redundant infrastructure and increased costs but is necessary given anticipated flow ranges over time and long conveyance distances.
4. Gravity sewer service is preferential to lift Station and force main service when financially viable.



Engineer's Opinion Of Total Probable Project Costs For Crown Point To Provide Gravity Sewer Serve To LBL Development

Item No.	Item Description	Qty	Unit	Unit Price	Item Total
1	24" Gravity Sewer Inclusive of installed Pipe	4,844	LF	$ 375	$ 1,816,500
2	MHs	15	EA	$ 10,000	$ 150,000
3	24" Gravity Pipe Ancillary Scope of Install-All Depths	4,844	LF	$ 200	$ 968,800
4	Subtotal-Construction Costs Less Contingency and Mobilization, Bonds and Start-up Costs				$ 2,935,300
5	Construction Cost Contingency	20	%		$ 587,060
6	Subtotal-Construction Costs Less Mobilization, Bonds and Start-up Costs				$ 3,522,360
7	Mobilization, Bonds and Start-up Costs	5	%		$ 176,118
8	Total Construction Costs				$ 3,698,478
9	Project Costs-Engineering, Construction Administration, Permits, Easements and Other Implementation Overhead	25	%		$ 924,620
10	Total Project Costs				$ 4,623,098

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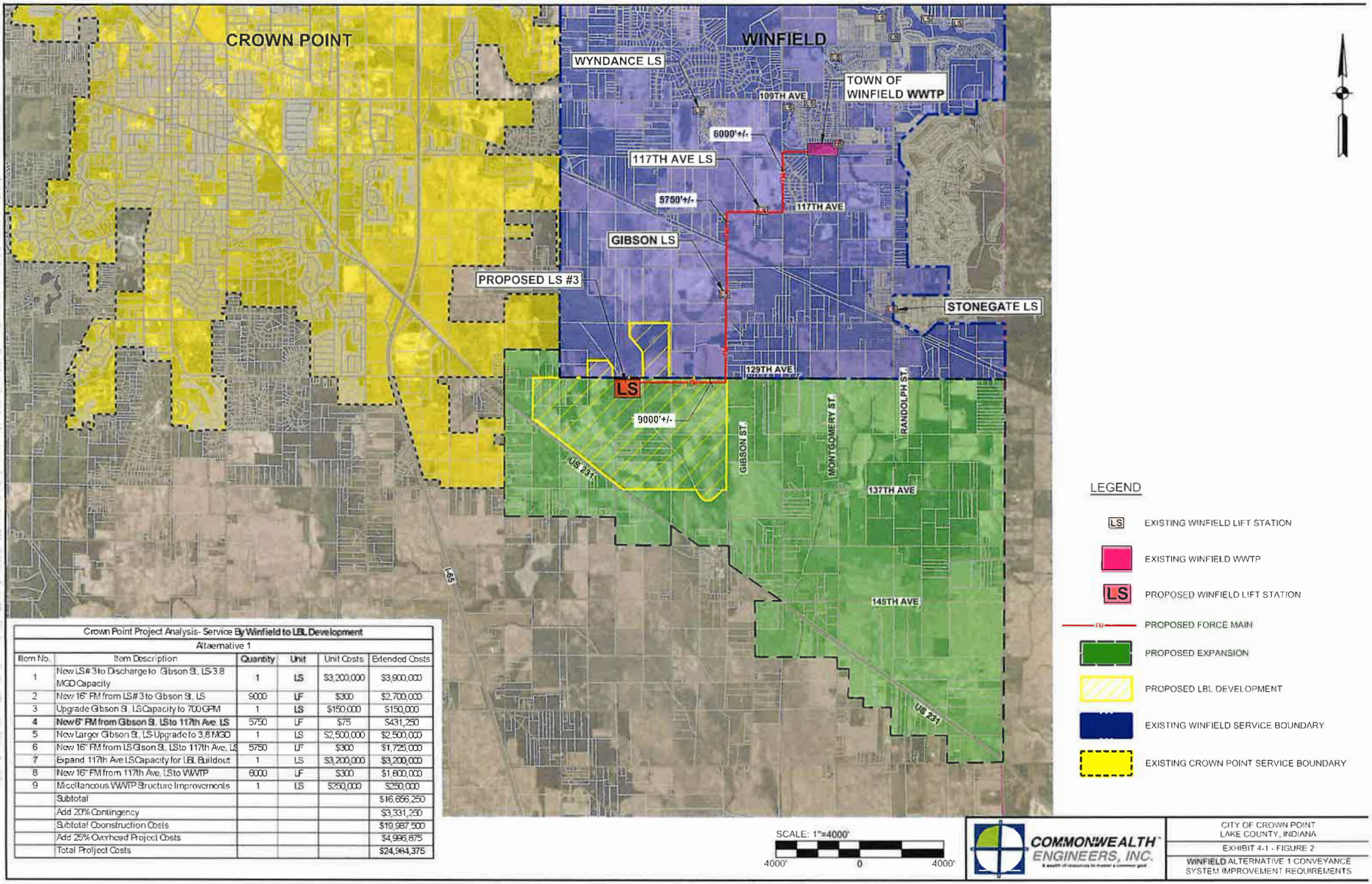
EXHIBIT 4-1 - FIGURE 1

REQUIRED IMPROVEMENTS FOR LBL TO CONVEY FULL BUILD-OUT FLOW TO THE SE WWTP



Crown Point Project Analysis- Service By Winfield to LBL Development					
Alternative 1					
Item No.	Item Description	Quantity	Unit	Unit Costs	Extended Costs
1	New LS# 3 to Discharge to Gibson St. LS-3.8 MGD Capacity	1	LS	$3,200,000	$3,900,000
2	New 16" FM from LS# 3 to Gibson St. LS	9000	LF	$300	$2,700,000
3	Upgrade Gibson St. LS Capacity to 700 GPM	1	LS	$150,000	$150,000
4	New 6" FM from Gibson St. LS to 117th Ave. LS	5750	LF	$75	$431,250
5	New Larger Gibson St. LS-Upgrade to 3.8 MGD	1	LS	$2,500,000	$2,500,000
6	New 16" FM from LS Gibson St. LS to 117th Ave. LS	5750	LF	$300	$1,725,000
7	Expand 117th Ave LS Capacity for LBL Buildout	1	LS	$3,200,000	$3,200,000
8	New 16" FM from 117th Ave. LS to WWTP	6000	LF	$300	$1,800,000
9	Miscellaneous WWTP Structure Improvements	1	LS	$250,000	$250,000
	Subtotal				$16,656,250
	Add 20% Contingency				$3,331,250
	Subtotal Construction Costs				$19,987,500
	Add 25% Overhead Project Costs				$4,996,875
	Total Project Costs				$24,984,375

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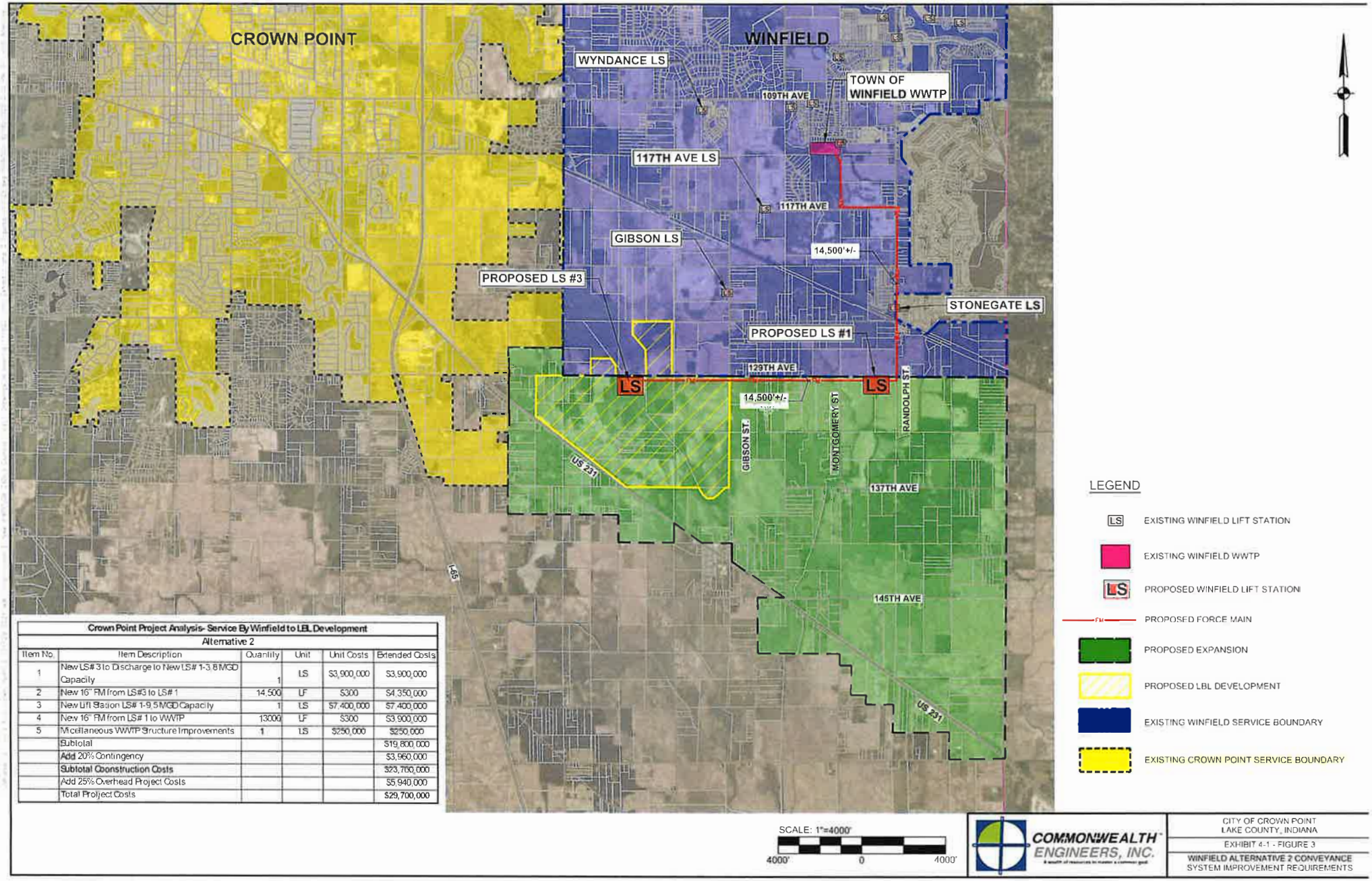
LAKE COUNTY, INDIANA

EXHIBIT 4-1 - FIGURE 2

WINFIELD ALTERNATIVE 1 CONVEYANCE SYSTEM IMPROVEMENT REQUIREMENTS



Crown Point Project Analysis- Service By Winfield to LBL Development					
Alternative 2					
Item No.	Item Description	Quantity	Unit	Unit Costs	Extended Costs
1	New LS# 3 to Discharge to New LS# 1-3.8 MGD Capacity	1	LS	$3,900,000	$3,900,000
2	New 16" FM from LS#3 to LS# 1	14,500	LF	$300	$4,350,000
3	New Lift Station LS# 1-9.5 MGD Capacity	1	LS	$7,400,000	$7,400,000
4	New 16" FM from LS# 1 to WWTP	13000	LF	$300	$3,900,000
5	Miscellaneous WWTP Structure Improvements	1	LS	$250,000	$250,000
	Subtotal				$19,800,000
	Add 20% Contingency				$3,960,000
	Subtotal Construction Costs				$23,760,000
	Add 25% Overhead Project Costs				$5,940,000
	Total Project Costs				$29,700,000

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EXHIBIT 4-1 - FIGURE 3

WINFIELD ALTERNATIVE 2 CONVEYANCE
SYSTEM IMPROVEMENT REQUIREMENTS

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EXHIBIT 4-2
ANALYSIS

SUBJECT: Servicing the Entire Expanded Service Territory
Winfield Plan

Introduction:

Since Winfield has not provided the requested details in discovery or in its testimony for the calculated project costs (nor has it even provided a cost) associated with Winfield proposed Collection and Conveyance System Improvements Projects for infrastructure improvements Winfield identified in concept to provide sewage collection and conveyance service to the extent of the Winfield requested expansion of service territory, this analysis has been performed premised upon Commonwealth Engineers, Inc.'s (Commonwealth's) understanding of the system and corresponding needs. Commonwealth has utilized information presented in Winfield Testimony supplemented with relevant information from both IDEM's Virtual File Cabinet (VFC) and information obtained through the Engineer's review of Winfield's 2016 Sanitary Master Plan to identify the anticipated scope of improvements. Commonwealth then assembled a Cost Estimate to quantify the improvement projects costs. Winfield's Exhibit 8 in the Duffy Testimony was utilized as the primary basis of the Winfield plan. Winfield's Total Developable Area figure was also utilized.

Approach

Winfield's Total Developable Area figure identifies 3,794 developable acres. Utilizing this information and Winfield's identified housing density assumption of 2 homes per acre readily identify wastewater collection and conveyance demands for the expanded service territory:

- Average Design Flow: 3,794 acres x 2 homes/acre x 310 gpd / home = 2,353,280 gpd
- Peak Design Flow: 2,353,280 gpd x 4 (PF) = 9,409,120 gpd

For ease of analysis, Commonwealth assumed all flow within the expanded service territory less that generated by the LBL Development would be required collected by the Winfield Exhibit 8 provided gravity sanitary sewers and conveyed to the Winfield illustrated Proposed LS #2. This results in a clear scope of improvement for Proposed LS #2 (5.6 MGD):

7588 EDUs (expanded service territory) – 3,074 EDUs (LBL) = 4,514 EDUs

Average Design Flow: 4,514 EDUs x 310gpd = 1,399,340 gpd

Peak Design Flow: 1,399,340 gpd x 4 (PF) = 5,597,360 gpd

This same parameter was used as the improvement parameter at Proposed LS #1.

The Exhibit 4-1 Figure 3 improvements project cost for servicing the LBL Development ONLY was then added to this scope of work. This captures the increased capacity requirement and improvement to Proposed LS #1 and the cost to convey flow from LBL Development to Proposed LS #1.

The expanded service territory illustrated gravity sanitary sewers were then assigned diameter and depth of installation assumptions and priced accordingly. Based on Engineer Analysis of topography and gravity sewer layout, it is clear the layout performed by Winfield did not account for grade. Sewer installation depths are often cost prohibitive or even unfeasible. That said, reasonable sewer installation depths were assembled in the cost estimate assembly to

afford reasonable summary cost conclusions and not make exorbitant due to required installation depths. Attached **Exhibit 4-2 – Figure 1** illustrates these improvements and presents the Cost Estimate: $139,089,500

Conclusions

Due to the lack of planning and costing information from Winfield the above-described project Cost Estimate was assembled. As noted in the Exhibit 4-1 Analysis, it is standard engineering practice when an expansion to service territory is desired to first update the Sanitary Master Planning to identify:

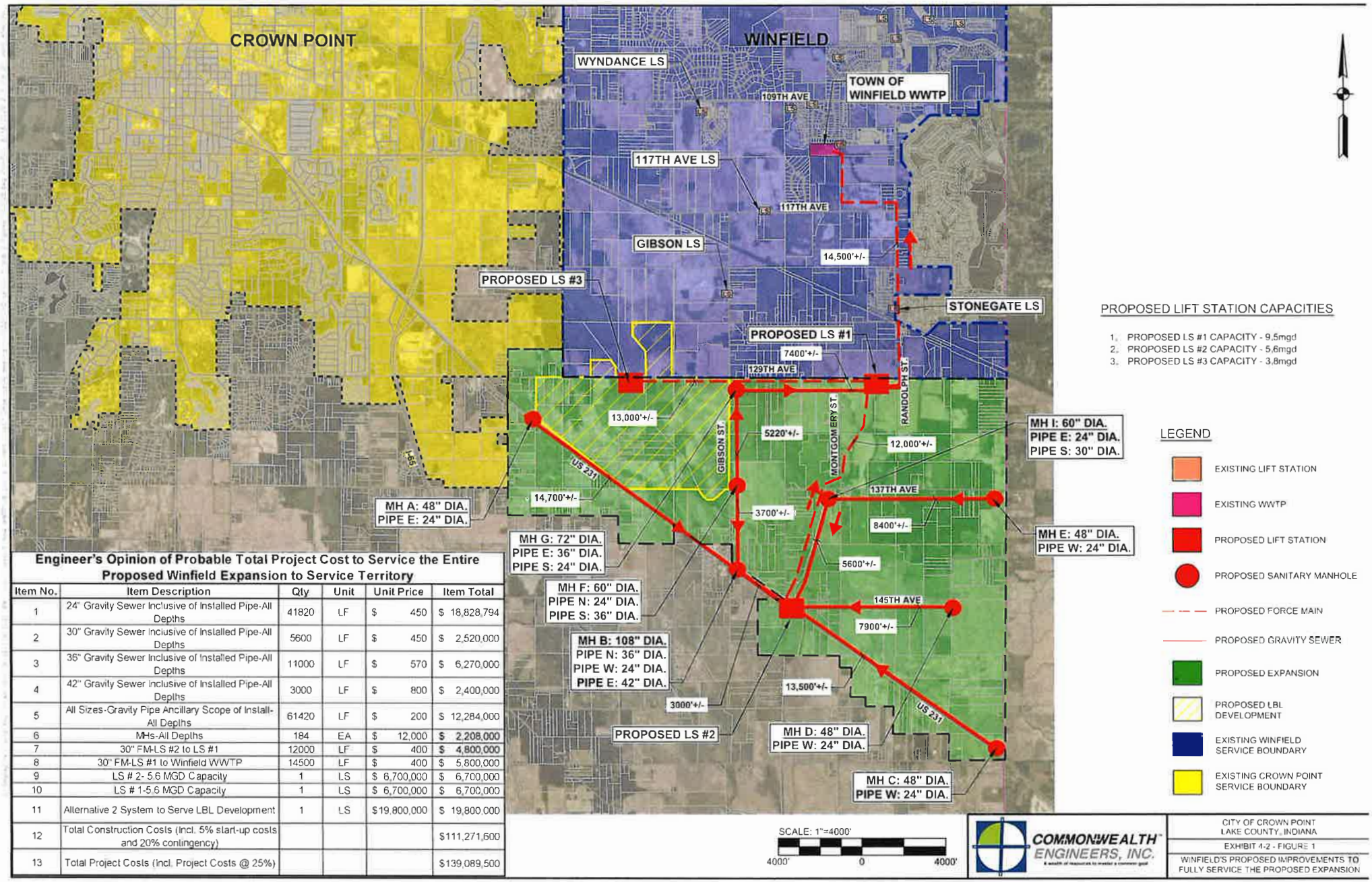
1. Existing Facility Conditions and Needs.
2. Updated Growth Projections (both within existing service territory and within the expanded service territory) – over a typical 20-year Planning Period.
3. Alternative improvements that are necessary to accommodate the anticipated growth both within the existing service territory and within the requested expansion of service territory.
4. Planning level costs that are associated with the alternative improvements.
5. Recommended Improvement Projects and Schedules for Implementation.
6. Means of Financing the Recommended Projects and corresponding impacts on rates.

Since this information has not been provided by Winfield to the Engineer, this analysis is the best means available to create a magnitude of cost assembly.

Clear conclusions result from this analysis and presentation of anticipated improvements project required:

1. It is unlikely that a $135M magnitude cost Collection System Only Improvements Project would prove affordable.

2. Improvements would likely be required in a manner necessary to service potential developments within the Winfield Expansion of Service Territory over time. This would necessitate phased improvements to the lift stations which would result in higher costs and redundant infrastructure installations.
3. Winfield has not addressed how they would phase improvements in a manner that would be viable economically to promote growth in the Winfield requested expansion of service territory nor viable functionally to convey flows from initial growth to full build-out of the area.
4. There is no means of servicing the entirety of the requested expansion in service territory without the daisy-chained lift station system inclusive of Proposed LS #2 and Proposed LS #1. This is a significant issue as any service to the area will initially require some capacity conveyance from both these lift stations and over 5 miles of force main. This will prove cost prohibitive in and of itself.



Engineer's Opinion of Probable Total Project Cost to Service the Entire Proposed Winfield Expansion to Service Territory

Item No.	Item Description	Qty	Unit	Unit Price	Item Total
1	24" Gravity Sewer Inclusive of Installed Pipe-All Depths	41820	LF	$ 450	$ 18,828,794
2	30" Gravity Sewer Inclusive of Installed Pipe-All Depths	5600	LF	$ 450	$ 2,520,000
3	36" Gravity Sewer Inclusive of Installed Pipe-All Depths	11000	LF	$ 570	$ 6,270,000
4	42" Gravity Sewer Inclusive of Installed Pipe-All Depths	3000	LF	$ 800	$ 2,400,000
5	All Sizes-Gravity Pipe Ancillary Scope of Install-All Depths	61420	LF	$ 200	$ 12,284,000
6	MHs-All Depths	184	EA	$ 12,000	$ 2,208,000
7	30" FM-LS #2 to LS #1	12000	LF	$ 400	$ 4,800,000
8	30" FM-LS #1 to Winfield WWTP	14500	LF	$ 400	$ 5,800,000
9	LS # 2- 5.6 MGD Capacity	1	LS	$ 6,700,000	$ 6,700,000
10	LS # 1-5.6 MGD Capacity	1	LS	$ 6,700,000	$ 6,700,000
11	Alternative 2 System to Serve LBL Development	1	LS	$19,800,000	$ 19,800,000
12	Total Construction Costs (Incl. 5% start-up costs and 20% contingency)				$111,271,600
13	Total Project Costs (Incl. Project Costs @ 25%)				$139,089,500

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EXHIBIT 4-2 - FIGURE 1

WINFIELD'S PROPOSED IMPROVEMENTS TO FULLY SERVICE THE PROPOSED EXPANSION

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EXHIBIT 4-3
ANALYSIS

SUBJECT: Plan for Servicing Likely Initial Development Scenarios in the Expanded Service Territory (Excluding the known LBL Development) – US 231 and I-65 Corridor Comparative Improvements – Winfield vs Crown Point

Introduction:

The US 231 corridor immediately east of Crown Point's corporate limits within the expanded service territory is the probable initial location for development (outside of the known LBL Development). Both Winfield and Crown Point identified comparative projects to provide service to the disputed territory in initial testimony. Both alternatives involved extension of sewer or force main from existing infrastructure to the border of the disputed territory. Crown Point extended gravity sewer from its existing manhole east along US 231 and Winfield extended force main south along Gibson Street to its southern border of the disputed territory.

To draw a clear comparison on infrastructure improvements required to prompt and serve initial development along the US 231 corridor I have assembled a clear initial development scenario and clear and complete improvements alternatives and costs. This is done to avoid potential for confusion on how this initial development could be comparatively served through new infrastructure. This is INCLUSIVE of the infrastructure required within the disputed territory.

This analysis presents comparative likely improvement projects, corresponding alternative requirements, and Project Cost Estimates.

LBL Development Sanitary Sewer Line Extension

LBL Development plans to extend a gravity sewer from the Northwest to the southeast, with a terminal manhole at US 231 – See **Exhibit 4-3 Figure 5**. Crown Point has coordinated with LBL for use of this gravity sewer main to convey flows that develop within the disputed territory.

Crown Point Gravity Sewer Line to new SE WWTP

Part of Crown Point's 4-Phase improvements project is the installation of a gravity sewer along US 231 within Corporate Limits to the new SE WWTP (See **Exhibits 4-3 Figure 1 & 3**).

Assumed Initial Projects Comparative Scopes

The initial improvement project scope scenario consists of the development of two (2) fast food restaurants, a "Pilot" type Gas Station, an Industrial Park and a Strip Retail Center along US 231. **Exhibit 4-3 – Figures 1&3** illustrate improvement scenarios for initial service by Crown Point. This cost is from the developments to Crown Point's new infrastructure. **Exhibit 4-3 – Figures 2&4** illustrate similar improvements scenarios for initial service by Winfield. This cost is from the developments to the Winfield existing WWTP.

Comparative Cost Estimates

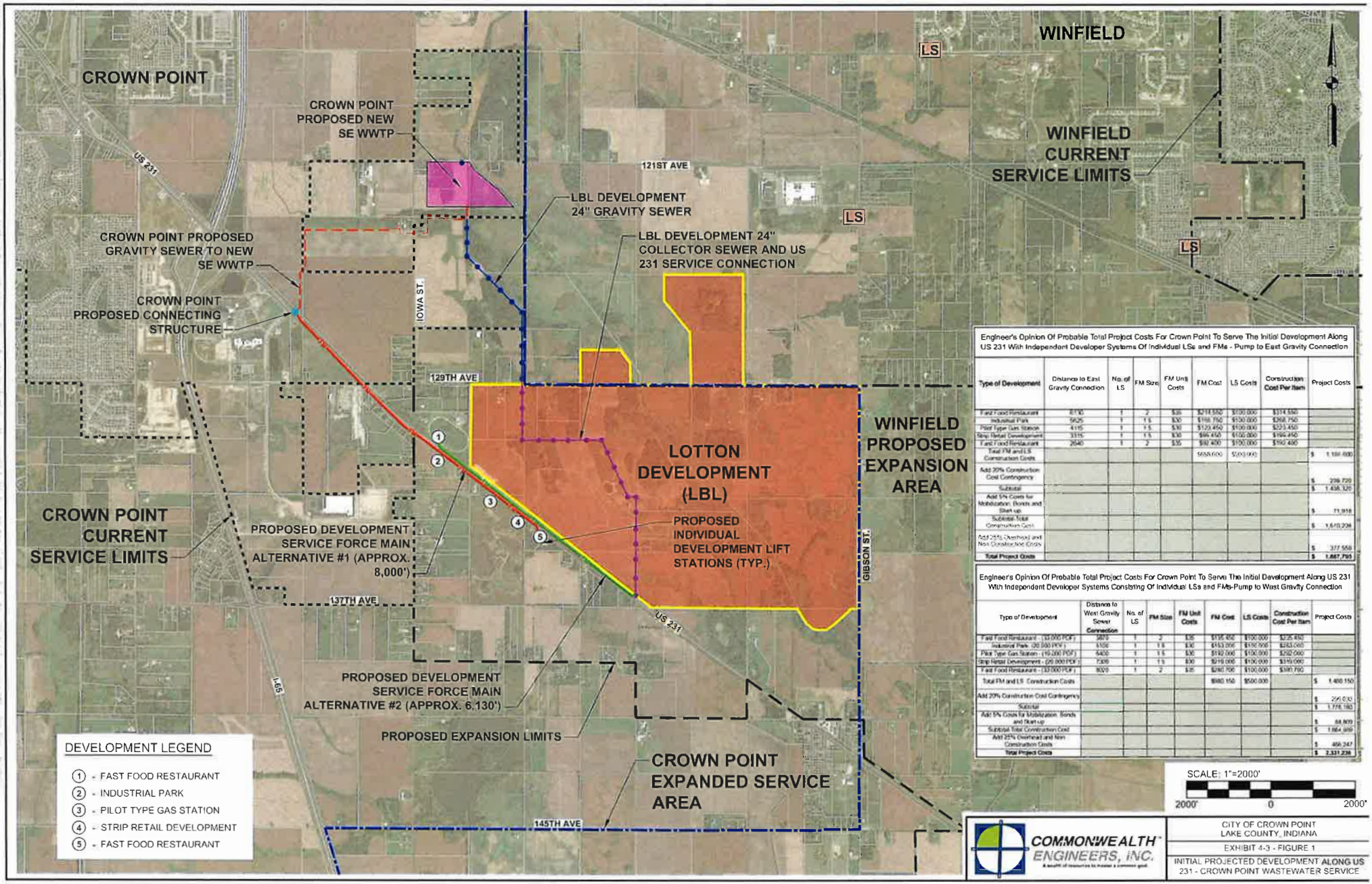
Crown Point Improvements Probable Project for the low cost alternative to route flow from these initial developments to its new infrastructure which conveys flow by gravity to the new SE WWTP is **$1,887,795**.

Winfield Improvements Probable Project for the low cost alternative to route flow from these initial developments to its existing WWTP is **$7,133,175**.

Conclusions

These project costs are dramatically different in magnitude primary due to Winfield's need for 2 lift stations and over 5-miles of force main to convey flows from this area to its existing WWTP. Regardless of wastewater treatment need, flow conveyance costs from the US 231 corridor within the disputed territory is cost prohibitive. Winfield must provide 2 daisy-chained lift stations and over 5-miles of force main to convey this flow to its existing WWTP. This need and corresponding Winfield required improvements will NEVER result in a more cost-effective means of conveying flow in comparison with Crown Point. The greater the flow required conveyed, the larger the lift stations and the larger the force mains.

Not only is this cost prohibitive but it is also problematic with the residence time of sewage within the force mains, and it cannot be scaled as cost effectively as Crown Point alternatives to increase flow conveyance capabilities as the area develops.



Engineer's Opinion Of Probable Total Project Costs For Crown Point To Serve The Initial Development Along US 231 With Independent Developer Systems Of Individual LSs and FMs - Pump to East Gravity Connection

Type of Development	Distance to East Gravity Connection	No. of LS	FM Size	FM Unit Costs	FM Cost	LS Costs	Construction Cost Per Item	Project Costs
Fast Food Restaurant	8190	1	2	$35	$218,550	$100,000	$314,550	
Industrial Park	5625	1	1.5	$30	$168,750	$100,000	$268,750	
Pilot Type Gas Station	4115	1	1.5	$30	$123,450	$100,000	$223,450	
Strip Retail Development	3315	1	1.5	$30	$99,450	$100,000	$199,450	
Fast Food Restaurant	2040	1	2	$35	$92,400	$100,000	$192,400	
Total FM and LS Construction Costs					$688,600	$500,000		$ 1,188,600
Add 20% Construction Cost Contingency								$ 239,720
Subtotal								$ 1,438,320
Add 5% Costs for Mobilization, Bonds and Start-up								$ 71,916
Subtotal Total Construction Cost								$ 1,510,236
Add 25% Overhead and Non Construction Costs								$ 377,559
Total Project Costs								$ 1,887,795

Engineer's Opinion Of Probable Total Project Costs For Crown Point To Serve The Initial Development Along US 231 With Independent Developer Systems Consisting Of Individual LSs and FMs-Pump to West Gravity Connection

Type of Development	Distance to West Gravity Sewer Connection	No. of LS	FM Size	FM Unit Costs	FM Cost	LS Costs	Construction Cost Per Item	Project Costs
Fast Food Restaurant - (3,000 PDF)	3870	1	2	$35	$135,450	$100,000	$235,450	
Industrial Park - (30,000 PDF)	5150	1	1.5	$30	$154,500	$100,000	$254,500	
Pilot Type Gas Station - (10,000 PDF)	6400	1	1.5	$30	$192,000	$100,000	$292,000	
Strip Retail Development - (20,000 PDF)	7300	1	1.5	$30	$219,000	$100,000	$319,000	
Fast Food Restaurant - (3,000 PDF)	8020	1	2	$35	$280,700	$100,000	$380,700	
Total FM and LS Construction Costs					$980,150	$500,000		$ 1,480,150
Add 20% Construction Cost Contingency								$ 296,030
Subtotal								$ 1,776,180
Add 5% Costs for Mobilization, Bonds and Start-up								$ 88,809
Subtotal Total Construction Cost								$ 1,864,989
Add 25% Overhead and Non Construction Costs								$ 466,247
Total Project Costs								$ 2,331,236

SCALE: 1"=2000'

2000' 0 2000'

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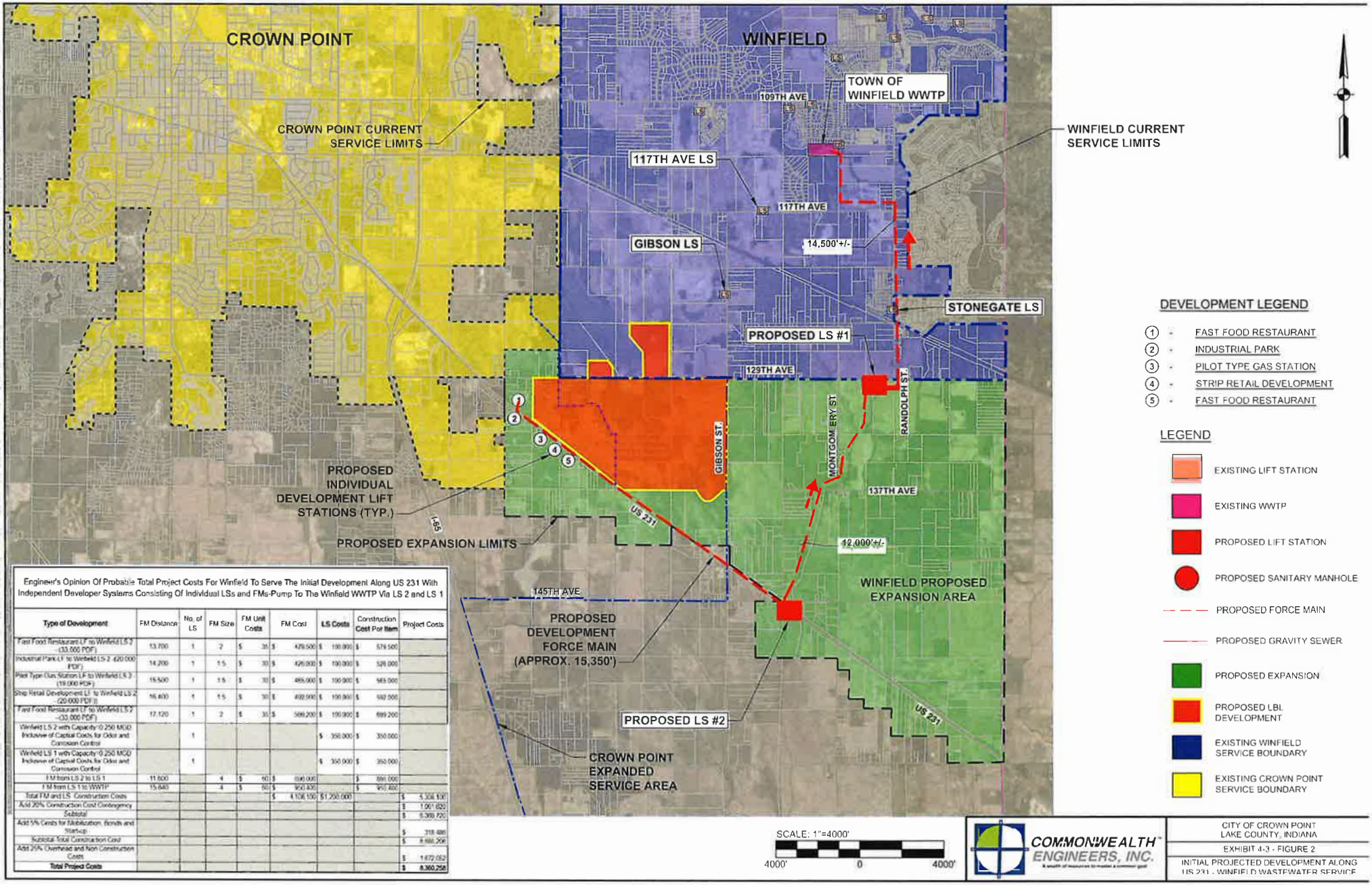
EXHIBIT 4-3 - FIGURE 1

INITIAL PROJECTED DEVELOPMENT ALONG US 231 - CROWN POINT WASTEWATER SERVICE



Engineer's Opinion Of Probable Total Project Costs For Winfield To Serve The Initial Development Along US 231 With Independent Developer Systems Consisting Of Individual LSs and FMs-Pump To The Winfield WWTP Via LS 2 and LS 1

Type of Development	FM Distance	No. of LS	FM Size	FM Unit Costs	FM Cost	LS Costs	Construction Cost Per Item	Project Costs
Fast Food Restaurant LF to Winfield LS 2 (33,000 PDF)	13,700	1	2	$ 35	$ 479,500	$ 100,000	$ 579,500	
Industrial Park LF to Winfield LS 2 (20,000 PDF)	14,200	1	1.5	$ 30	$ 426,000	$ 100,000	$ 526,000	
Pilot Type Gas Station LF to Winfield LS 2 (19,000 PDF)	15,500	1	1.5	$ 30	$ 465,000	$ 100,000	$ 565,000	
Strip Retail Development LF to Winfield LS 2 (20,000 PDF)	16,400	1	1.5	$ 30	$ 492,000	$ 100,000	$ 592,000	
Fast Food Restaurant LF to Winfield LS 2 (33,000 PDF)	17,120	1	2	$ 35	$ 599,200	$ 100,000	$ 699,200	
Winfield LS 2 with Capacity @ 250 MGD Inclusive of Capital Costs for Odor and Corrosion Control		1				$ 350,000	$ 350,000	
Winfield LS 1 with Capacity @ 250 MGD Inclusive of Capital Costs for Odor and Corrosion Control		1				$ 350,000	$ 350,000	
FM from LS 2 to LS 1	11,800		4	$ 50	$ 590,000		$ 590,000	
FM from LS 1 to WWTP	15,640		4	$ 50	$ 950,400		$ 950,400	
Total FM and LS Construction Costs					$ 4,108,100	$ 1,200,000		$ 5,308,100
Add 20% Construction Cost Contingency								$ 1,061,620
Subtotal								$ 6,369,720
Add 5% Costs for Mobilization, Bonds and Start-up								$ 318,486
Subtotal Total Construction Cost								$ 6,688,206
Add 25% Overhead and Non Construction Costs								$ 1,672,052
Total Project Costs								**$ 8,360,258**

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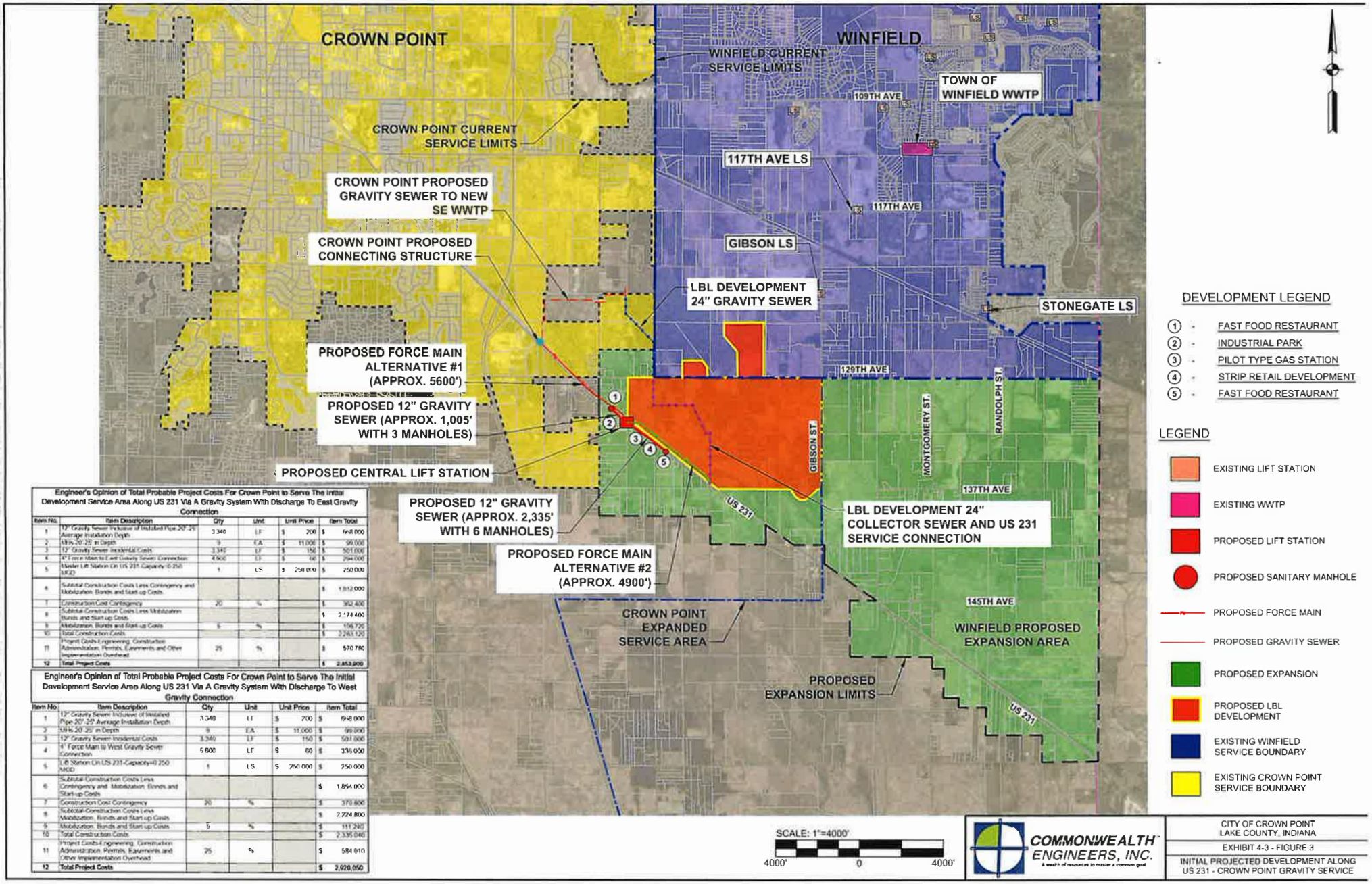
EXHIBIT 4-3 - FIGURE 2
INITIAL PROJECTED DEVELOPMENT ALONG US 231 - WINFIELD WASTEWATER SERVICE



Engineer's Opinion of Total Probable Project Costs For Crown Point to Serve The Initial Development Service Area Along US 231 Via A Gravity System With Discharge To East Gravity Connection

Item No.	Item Description	Qty	Unit	Unit Price	Item Total
1	12" Gravity Sewer Inclusive of Installed Pipe 20'-25' Average Installation Depth	3,340	LF	$ 200	$ 668,000
2	MHs 20'-25' in Depth	9	EA	$ 11,000	$ 99,000
3	12" Gravity Sewer Incidental Costs	3,340	LF	$ 150	$ 501,000
4	4" Force Main to East Gravity Sewer Connection	4,900	LF	$ 60	$ 294,000
5	Master Lift Station On US 231 Capacity @ 250 MGD	1	LS	$ 250,000	$ 250,000
6	Subtotal Construction Costs Less Contingency and Mobilization, Bonds and Start-up Costs				$ 1,812,000
7	Construction Cost Contingency	20	%		$ 362,400
8	Subtotal Construction Costs Less Mobilization, Bonds and Start-up Costs				$ 2,174,400
9	Mobilization, Bonds and Start-up Costs	5	%		$ 108,720
10	Total Construction Costs				$ 2,283,120
11	Project Costs-Engineering, Construction Administration, Permits, Easements and Other Implementation Overhead	25	%		$ 570,780
12	**Total Project Costs**				$ 2,853,900

Engineer's Opinion of Total Probable Project Costs For Crown Point to Serve The Initial Development Service Area Along US 231 Via A Gravity System With Discharge To West Gravity Connection

Item No.	Item Description	Qty	Unit	Unit Price	Item Total
1	12" Gravity Sewer Inclusive of Installed Pipe 20'-25' Average Installation Depth	3,340	LF	$ 200	$ 668,000
2	MHs 20'-25' in Depth	9	EA	$ 11,000	$ 99,000
3	12" Gravity Sewer Incidental Costs	3,340	LF	$ 150	$ 501,000
4	4" Force Main to West Gravity Sewer Connection	5,600	LF	$ 60	$ 336,000
5	Lift Station On US 231-Capacity=0.250 MGD	1	LS	$ 250,000	$ 250,000
6	Subtotal Construction Costs Less Contingency and Mobilization, Bonds and Start-up Costs				$ 1,854,000
7	Construction Cost Contingency	20	%		$ 370,800
8	Subtotal Construction Costs Less Mobilization, Bonds and Start-up Costs				$ 2,224,800
9	Mobilization, Bonds and Start-up Costs	5	%		$ 111,240
10	Total Construction Costs				$ 2,336,040
11	Project Costs-Engineering, Construction Administration, Permits, Easements and Other Implementation Overhead	25	%		$ 584,010
12	**Total Project Costs**				$ 2,920,050

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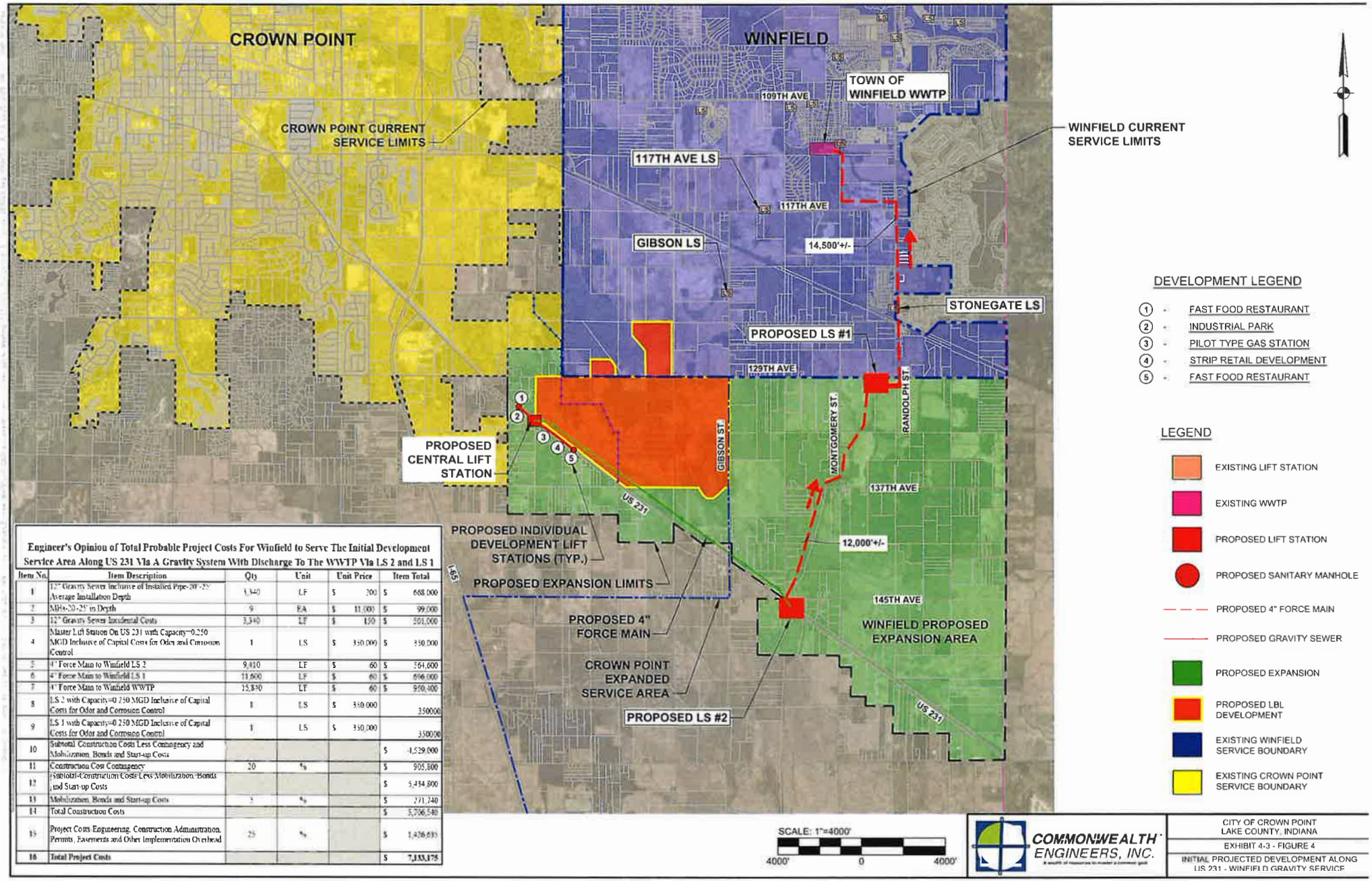
EXHIBIT 4-3 - FIGURE 3

INITIAL PROJECTED DEVELOPMENT ALONG US 231 - CROWN POINT GRAVITY SERVICE



Engineer's Opinion of Total Probable Project Costs For Winfield to Serve The Initial Development Service Area Along US 231 Via A Gravity System With Discharge To The WWTP Via LS 2 and LS 1

Item No.	Item Description	Qty	Unit	Unit Price	Item Total
1	12" Gravity Sewer Inclusive of Installed Pipe-20'-25' Average Installation Depth	3,340	LF	$ 200	$ 668,000
2	MH's-20'-25' in Depth	9	EA	$ 11,000	$ 99,000
3	12" Gravity Sewer Incidental Costs	3,340	LF	$ 150	$ 501,000
4	Master Lift Station On US 231 with Capacity=0.250 MGD Inclusive of Capital Costs for Odor and Corrosion Control	1	LS	$ 350,000	$ 350,000
5	4" Force Main to Winfield LS 2	9,410	LF	$ 60	$ 564,600
6	4" Force Main to Winfield LS 1	11,600	LF	$ 60	$ 696,000
7	4" Force Main to Winfield WWTP	15,830	LF	$ 60	$ 950,400
8	LS 2 with Capacity=0.250 MGD Inclusive of Capital Costs for Odor and Corrosion Control	1	LS	$ 350,000	350000
9	LS 1 with Capacity=0.250 MGD Inclusive of Capital Costs for Odor and Corrosion Control	1	LS	$ 350,000	350000
10	Subtotal Construction Costs Less Contingency and Mobilization, Bonds and Start-up Costs				$ 4,529,000
11	Construction Cost Contingency	20	%		$ 905,800
12	Subtotal-Construction Costs Less Mobilization, Bonds and Start-up Costs				$ 5,434,800
13	Mobilization, Bonds and Start-up Costs	5	%		$ 271,740
14	Total Construction Costs				$ 5,706,540
15	Project Costs Engineering, Construction Administration, Permits, Easements and Other Implementation Overhead	25	%		$ 1,426,635
16	**Total Project Costs**				$ 7,133,175

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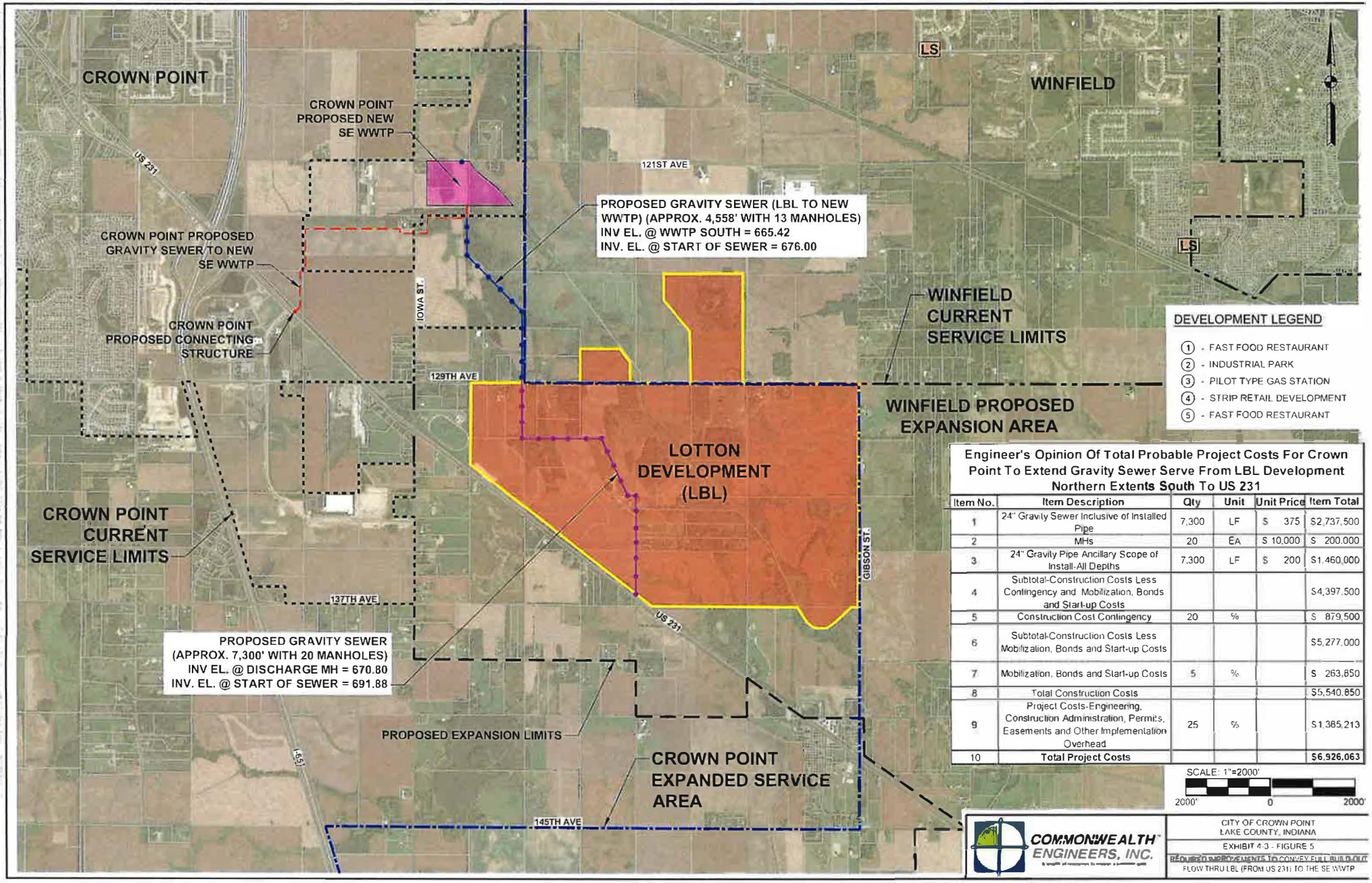
EXHIBIT 4-3 - FIGURE 4
INITIAL PROJECTED DEVELOPMENT ALONG US 231 - WINFIELD GRAVITY SERVICE



Engineer's Opinion Of Total Probable Project Costs For Crown Point To Extend Gravity Sewer Serve From LBL Development Northern Extents South To US 231

Item No.	Item Description	Qty	Unit	Unit Price	Item Total
1	24" Gravity Sewer Inclusive of Installed Pipe	7,300	LF	$ 375	$2,737,500
2	MHs	20	EA	$ 10,000	$ 200,000
3	24" Gravity Pipe Ancillary Scope of Install-All Depths	7,300	LF	$ 200	$1,460,000
4	Subtotal-Construction Costs Less Contingency and Mobilization, Bonds and Start-up Costs				$4,397,500
5	Construction Cost Contingency	20	%		$ 879,500
6	Subtotal-Construction Costs Less Mobilization, Bonds and Start-up Costs				$5,277,000
7	Mobilization, Bonds and Start-up Costs	5	%		$ 263,850
8	Total Construction Costs				$5,540,850
9	Project Costs-Engineering, Construction Administration, Permits, Easements and Other Implementation Overhead	25	%		$1,385,213
10	**Total Project Costs**				**$6,926,063**

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CITY OF CROWN POINT
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EXHIBIT 4-3 - FIGURE 5
REQUIRED IMPROVEMENTS TO CONVEY FULL BUILD-OUT FLOW THRU LBL (FROM US 231) TO THE SE WWTP