

City of Maize Industrial Park
Phase III Report – Infrastructure Assessment
December 16, 2013



EXPERIENCE | Transportation

MAIZE INDUSTRIAL PARK INFRASTRUCTURE ASSESSMENT

Based on the assumptions presented within Phase I and Phase II of this study, an assessment of existing and future infrastructure serving a proposed industrial park was performed. The basis of the assessment is to determine, from a high level planning perspective, how much of a 274 acre light industrial park can be developed with the infrastructure in place today and should improvements be required, what those are and the costs associated with them. Finally, TranSystems will identify potential funding sources to help offset costs the city of Maize would face. Existing public infrastructure that is reviewed as a part of this study includes:

- Existing 10" water line serving the site
- Existing 8" sewer line serving the site
- Expansion of the existing wastewater treatment plant
- Two lane roadways along 53rd Street and 119th Street
- Rail siding
- On site improvements

1.1 Water Service

Calculations run by TranSystems have concluded that the current infrastructure in place for this part of the city of Maize will adequately handle the demand of a future light industry park. Currently, only Worthington Cylinders utilizes the 10" line that services the area. With this information, TranSystems has concluded that water infrastructure outside the footprint of the industrial park will not require improvements for initial or complete build out. The site will require on site improvements which can be found in the onsite improvements section.

While the infrastructure can adequately serve the needs of a future industrial site, a problem could arise from the availability of water to the City. As was discovered in the Phase I Site Analysis, Maize has the rights to pump approximately 690,000 gallons per day (gpd) from the Equus Bed Aquifer. The introduction of industrial users identified in the Phase II Market Analysis will likely exceed this amount. Taking into account light manufacturing and other light industries, initial phases of development would likely require 210,000 gpd and ultimate build out would need 410,000 gpd. With current and projected growth trends in Maize, both commercial and residential, Maize needs to further investigate the water demand for the City as a whole.

TranSystems has identified three potential steps that could be taken to remedy this potential shortage. First, the City could apply for increased water rights from its two existing wells at 29th Street and 119th Street. This will require minimal improvements to infrastructure, but will require significant consultation with the Groundwater Management District. Secondly, Maize could investigate the addition of more wells in and around town. Depending on the location of additional wells, the City will have to invest in new infrastructure. Should the wells be set closer to the development, minimal upgrades will be needed. Again, consultation with the Groundwater Management District will be necessary.

With the rapid expansion of Maize, the current methods of water treatment may also need improvement according to Kansas Department of Health and Environment standards. This will require the City to investigate its long term water plan more closely.

1.2 Sewer Service

The existing 8" diameter gravity sewer has a capacity of approximately 500,000 gallons per day. Based on a sewage flow of 1500 gpd per acre for light industry, a flow rate of 410,000 gpd is

estimated for ultimate build out. This will allow approximately 90,000 gpd for existing users on the 8" main in the City. On site sewer improvements can be found in the On Site Improvements Section.

Sewage production of over .4 million gallons per day from the park will push Maize's sewage treatment plant past its current design flow. When constructed, the plant was built with expansion in mind and constructed with infrastructure to double the capacity of the facility. With the proper piping, only a new basin needs constructed to accommodate the additional flow. In 2014 dollars, construction of a new basin would cost approximately \$750,000.00.

TranSystems has also identified the possibility of a partnership with the City of Wichita for industrial sewage treatment. Wichita has a 2,000,000 gallon per day facility south of Maize known as Cowskin Creek Water Quality Reclamation Facility. This would require significant infrastructure improvement but would accommodate nearly any industry or demand from the industrial park.

1.3 Roadway

With recent improvements to K-96, 53rd Street and 119th Street, improvements for initial phases of construction are minimal. Improvements to the onsite transportation system, as well as minor roadway improvements are included in the onsite improvements section.

Ultimately both 53rd Street and 119th Street will require upgrades to accommodate increased traffic to the park. Each project will widen the roadway and will likely require the acquisition of right of way from property owners. For right of way acquisition along both roadways, TranSystems estimates roughly \$250,000 should be budgeted.

119th Street will need to be converted from its current two lane rural configuration to a three lane urban section. Widening will tie into the 119th Street Intersection and will continue north 0.3 miles to the Kansas & Oklahoma (K&O) railroad tracks. The three lane section will allow for relatively unimpeded flow north and south while providing space for trucks and personal vehicles to access the park. This project is considered of lesser importance than improvements to 53rd Street as the current concrete section appears to be in relatively good condition and has only about 20% of the daily traffic. Improvements to 119th Street would cost roughly \$1,665,000.

Creation of an industrial park near 119th and 53rd Street is expected to substantially increase traffic on 53rd Street as many commuters from Wichita will exit K-96 at 53rd Street and continue to the park. Improvements have recently been completed from K-96 to the K&O Railroad crossing, but increased traffic west of the tracks will require reconstruction of the entire section paralleling the industrial park. TranSystems expects that the current two lane rural section will need to be reconstructed to create a five lane urban section from ½ mile west of 119th Street to the K&O Railroad.

Drainage will be a significant component to the 53rd Street widening as a major watershed drains towards 53rd Street from the northwest. The proposed drainage design and construction will need to tie into the improved section of 53rd Street completed as a part of the Maize Road project. Since the watershed crosses the proposed industrial park property, drainage design between the industrial park and 53rd Street improvements will need to be closely coordinated due to relatively small relief in ground elevations.

WAMPO, Wichita Area Metropolitan Planning Organization, currently lists 53rd Street improvements as a potentially funded project in its 2035 Long Range Transportation. The development of an industrial park along this corridor should enhance the project's standing as it competes for funding across the region. Expansion of this road will cost roughly \$10,875,000.00 for complete build out.

1.4 Rail Siding

As has been stated in previous phases, the availability of rail on site is one of the most appealing characteristics of this site. Companies who wish to utilize this mode of transportation will be able to directly access rail, decreasing shipping costs.

WATCO cannot stop trains on their mainline so to use the rail, improvements will need to be made. In meetings with WATCO, two ideas were posed by K&O employees. Either a rail spur or rail siding would need to be constructed on site. A rail spur is a circular tangent rail that connects to the mainline and allows rail cars to exit the mainline, stop for loading then back onto the mainline again. This idea was considered but ultimately found to be impractical for many reasons. The spur would likely split from the mainline to the south between 119th Street and 135th Street. This would essentially cut the park into two sections and would use a considerable amount of area as the radius for the spur needs to be quite large. At that location, the amount of area for businesses to use for loading and unloading would decrease sharply. Finally, the train would only be able to exit from either the east or west. This was deemed inefficient in comparison to a spur which would allow a train to exit and enter the mainline from either eastbound or westbound travel. A 3,000 linear feet (L.F.) siding would also allow ample space for interested companies to locate along the line and would use considerably less area than a spur. A siding track of this length is expected to cost \$2,400,000.

1.5 On Site Improvements

1.5.1 Water Line

Based on a water usage of 1,500 gallons per day (gpd) per acre for a typical light industry, an average daily water usage of 283 gallons per minute (gpm) has been estimated to serve the entirety of the 274 acre site. An additional 500 gpm fire demand results in a peak usage rate of 783 gpm. The existing 10" main, plus 10" extensions for both the east and west sides of the park will adequately serve the industries in the park. Depending on future expansion, other minor branches from the 10" main will likely be required, but will be determined on an as needed basis depending on location and demand of the specific users.

As was discussed in previous meetings with the City and shareholders, development of the park would likely begin on the property east of 119th Street and progress west as needed. Initial development of the 109 acre eastern plot as well as roughly 30 acres of the center plot will rely heavily on the existing main. To connect to this line, a relatively short perpendicular extension to the east would be required. This extension would require installation of roughly 1,300 linear feet (L.F.) of pipe. Exact configuration and quantities will depend on how the property is subdivided and how the site is developed. Assuming the usage rate of 1,500 gpd per acre the average daily water demand for the initial phases would be roughly 210,000 gpd or 145 gpm. Accounting for fire flow, the demand will be roughly 645 gpm and the head loss will be about 5 psi resulting in a pressure of roughly 45 pounds per square inch (psi). Accounting for construction costs and engineering fees, as well as adding a 20% contingency for future economic fluctuations, the first water line expansion can be expected to cost roughly \$410,000.00 in 2014 dollars.

For ultimate build out of the remaining 135 acres an additional extension of the 10" main would be required. Roughly 4,000 L.F. of pipe would need to be added to service the entire area. Again using the 1,500 gpd per acre the demand for the final phases of development would be roughly 203,000 gpd or 138 gpm. Assuming completion of the eastern phase this would bring the total demand on the line to 738 gpm with a resulting pressure of 39 psi. The City can expect a cost of roughly \$1,225,000.00 for the remainder of the waterline extension.

1.5.2 Sanitary Sewer

Sanitary sewer improvements on site would be similar to that of the water line in terms of length. Roughly 1,300 L.F. would be needed east of 119th Street and 3,000 L.F. west of 119th Street. Again, it is assumed that the eastern portion of the site would be developed first and would require an initial investment of approximately \$250,000.00. This will allow development for approximately 170 acres. Connection to individual sites will require small investments as well, but will be based on the users of the site. For ultimate build out, the 8" main would need to be extended to the western limits of the site. This 3,000 L.F. expansion is expected to cost \$575,000.00.

Across the entire 274 acres, the change in elevation is only approximately 5 feet. This indicates that the gravity fed sewer system may require additional improvements to move this high amount of waste to the treatment plant. One or more lift stations, the exact number depends directly on how development occurs within the park, will likely be required to provide sewer service to the entire area. A single lift station would cost approximately \$150,000.00.

1.5.3 Streets

Streets and accompanying drainage will require the most significant improvements on site. Minor improvements to 53rd Street will likely be required for the initial phases of development. While the

roads can handle the current traffic load, the addition of turn lanes along the development area will greatly improve the traffic flow both in and out of the park. All new roads within the park will be built as urban sections and will have full curb and gutter as well as storm sewer. The exact number, size, and layout of roads will be determined when a Master Plan is completed, however based upon the potential investors in the site as well as the sheer size of the park, a total investment of \$8,700,000. Of this, \$3,500,000 will be used for streets and drainage on the site east of 119th Street with \$5,200,000 needed to extend roadways and storm sewer through the plots west of 119th Street.

1.6 Potential Grant and Loan Sources

With a total cost of over \$27,000,000 for ultimate build out, Maize should plan to apply for grants and loans to offset a portion of the cost. TranSystems has identified a number of potential grant and loan sources that the City can utilize. Sources range from local to statewide organizations and can be applied to different infrastructure costs. The sections below will describe the nature and benefit of each loan along with which projects they could be applied toward.

1.6.1 Kansas Water Pollution Control Revolving Fund (KWPCRF)

One method available to the City is the Kansas Water Pollution Control Revolving Loan Fund administered by the Kansas Department of Health and Environment (KDHE). It is utilized to fund wastewater treatment projects. This program, which replaced the EPA grant program that was active in the 1970's and 1980's, makes loans to communities at a rate that is generally below the commercial bond rate. The approximate current rate is 2.5%. Should the City desire to pursue this funding alternative, it is prudent to initiate the process of application as soon as possible so that KDHE can earmark funds for the project. As part of this funding program, the City is required to hold a public meeting and hearing prior to formal approval of the Engineering Report. This loan program could potentially be used for construction of a second basin at Maize's wastewater treatment plant, construction of one or more lift stations, or line extensions on site.

1.6.2 Community Development Block Grants (CDBG)

The Community Development Block Grant program accepts responsibility for administering federally funded grants to communities. Based on a population formula, the U.S. Department of Housing and Urban Development (HUD) provides Kansas federal funds to be allocated to local units of government. The Kansas Department of Commerce and Housing (KDOCH) is the designated State administering agency in Kansas. The KDOCH will distribute the CDBG funds to units of general local government (cities and counties) in Kansas. The community improvement projects may consist of, but are not limited to water line improvements, sewer improvements and streets. Grants are awarded on a competitive basis once a year. Community Improvement applications will be evaluated, scored and ranked according to criteria designed to measure community need and effort, project quality and impact, and to assure benefit to low and moderate income persons. Any funds received from the CDBG will likely be applied towards sewer and water improvements.

1.6.3 Kansas Department of Transportation Economic Development (ED) Program

The ED program uses transportation investments to recruit new businesses and encourage growth of existing businesses. This is a reimbursable grant program with the intention of creating new jobs and capital investment in the state. Annually, KDOT releases \$10,000,000.00 in reimbursable grants and can be applied to any transportation project in Kansas that can be shown to support job growth or capital investment. Road projects, rail projects, airport improvements and public transportation are all eligible and typically include access roads, turning lanes and rail spurs. Local governments,

often partnering with private businesses, may apply with a 25% local match generally required. KDOT's ED program could potentially be applied toward onsite roadway improvements, the WATCO rail siding, and expansion of 53rd and 119th Street.

1.6.4 Kansas Department of Transportation Economic Development Loan (TEDL)

TEDL provides funds for partnering with local governments and the private sector to support the State's economy by creating new jobs and encouraging capital investment. Roadway projects, likely interchange and corridor management projects which will support job growth or capital investment are eligible to receive funding. Enhancements that increase roadway capacity or that improve connectivity are typical recipients. Five requirements must be met for loans to be awarded and are listed below:

1. **Must be Non Speculative:** The program is not intended to fund improvements merely for future recruitment of businesses.
2. **Require a Three Party Agreement:** Kansas Department of Transportation, local government, and at least one private sector business must be involved.
3. **Basic Infrastructure Must be in Place or Eminent:** Water and sewer must be constructed or in the process of being constructed.
4. **Projects Cannot Just Transfer Business:** Businesses cannot be moved from one part of the state to another. Outside businesses must be brought in.
5. **Must Have Support of Local Leaders:** Elected officials and the presiding Chamber of Commerce must support the plan.

53rd Street improvements will be the most likely recipient of funds from the TEDL program. Improvements to 53rd Street in Maize will benefit the corridor across the Wichita area and may improve the likelihood of funding. 119th Street as well as geometric improvements at K-96 and 119th Street are possible recipients as well.

1.6.5 Kansas Department of Transportation Rail Service Improvement Fund

KDOT, through a combination of loans and reimbursement grants, may award up to \$5,000,000.00 annually for projects that improve rail access for businesses and preserve the condition of the state's short line rail network. Projects that improve the condition or expand the capacity of the state's short line railroads and projects that can be used to recruit or expand business in the state by providing better access to the state's rail network. Typical projects include rehabilitations and reconstruction projects, spurs, sidings and extensions. Local match of 30% is often required and must prove a cost to benefit ratio of one or more. The expansion of WATCO's rail could receive the majority of its funding through this program.

1.6.6 Wichita Area Metropolitan Planning Organization (WAMPO)

WAMPO is the planning organization for the Wichita metropolitan area and administers state and federal dollars that come into the region. The 53rd Street and 119th Street expansions would be two projects the City could apply for funding for at a typical 20% local match using 80% state and federal dollars. The local funding match can also be divided up among multiple local partners such as Sedgwick County. Projects must be listed in the current Long Range Transportation Plan as well as the current Transportation Improvement Program document to be eligible for funding. The City's last project that was funded through WAMPO was the Maize Road project from 45th Street to K-96

1.6.7 Conventional Bonds

Another option for the City to fund the proposed improvements would be through conventional municipal bonds. Should the City desire additional information on the finance method it would be advisable to contact a reputable municipal bond agent.

1.6.8 Other

Variations of the above funding sources include a design-build alternative or private ownership and lease agreement.

1.7 Next Steps

TranSystems recommends a phased approach to the planning and development of the industrial park. The below steps highlight a proposed path and phased approach to begin development of the industrial park. The timeline of these steps depends on the City's desire to obligate funds for development of the park.

1. Real Estate and Master Planning

After the conclusion of this study, and should the City choose to move forward, TranSystems recommends engaging a corporate real estate agency to work on their behalf to determine the best approach to land acquisition. Gaining options on the current land gives the City flexibility of acquiring the land without the capital investment required in a "buy and hold" strategy. As this process is occurring, master planning of the site can occur. This will provide layouts of the streets, storm sewers, sanitary sewers, water lines, and lot sizes. Project phasing can also occur at this stage. Drainage design will be a significant component to this stage as well. TranSystems recommends a drainage study to determine the best drainage solutions between both the industrial park and proposed widening of 53rd Street. There is a possibility that due to the lack of ground relief between the west end of the proposed 53rd Street project and where it will tie into the recently completed 53rd Street improvements, a detention storage facility will be needed on the industrial park site that accommodates drainage from both sites. Once this is known, the master plan can be completed with an appropriately sized area for detention. At the conclusion of the master planning phase marketing of the site can occur and engineering design of the site can begin.

2. Site Engineering and Marketing

Once the master plan is complete, site engineering and design can be completed including design of the rail spur. In addition, the City can take the appropriate steps, if it so desires, to apply for funding assistance for the construction of the projects highlighted in this report. TranSystems recommends not beginning construction of the first phase of the industrial park until a business opportunity is presented by a company desiring to locate to the park. Many of the economic development related grant and loan programs list job creation as one of the application criteria for funding assistance. It will also prevent the City from getting over extended financially on infrastructure improvements but can be considered "shovel ready" as the improvements can be completed in approximately 6 months. Design and construction of the adjacent arterial streets can be completed independently of the industrial park timeline, however, the sooner they are completed, the better the site can be marketed. Design of the wastewater treatment basin should occur at this time as well so the City can ensure

future site selectors that the plant has the capacity to serve them with no issue. With the site being shovel ready, significant marketing can occur including website development, distribution of marketing materials and trade show attendance providing good return on the City's investment.

3. Construction

Site construction can begin after the City acquires the land and the site engineering is completed. Often times, if construction is timed with new tenant's construction, the improvements and site grading can be coordinated resulting in a higher quality finished project.

4. Ongoing Activities

Many coordination issues will need to be handled on an ongoing basis including the following:

1. Site Marketing and Real Estate Representation
2. Citywide Water Demand Planning
 - i. Residential and Commercial Water Source Analysis
3. Wastewater Planning
 - i. Wastewater Plant Expansion
4. Private Utility Coordination
5. Stakeholder Marketing Coordination
 - i. WATCO
6. Funding Applications
7. Project Update Submittals to WAMPO
8. KDOT Improvement Coordination
 - i. K-96 and 119th Street Intersection Improvements



Attachment A: Proposed Project Improvement Summary

Projects	Cost	Contingency (20%)	Planning, Engineering, Construction Administration	Total	Potential Grant/Loan Sources
<u>Planning</u>					
Master Plan Development & Drainage Analysis	-	-	\$100,000.00	\$100,000.00	-
<u>On Site Improvements</u>					
Streets and Drainage	\$5,800,000.00	\$1,160,000.00	\$1,740,000.00	\$8,700,000.00	KDOT ED, Partnerships
8" Sanitary Sewer Line Extension & Lift Station	\$650,000.00	\$130,000.00	\$195,000.00	\$975,000.00	KWPCRF, CDBG, KDHE
10" Water Main Extension	\$1,090,000.00	\$218,000.00	\$327,000.00	\$1,635,000.00	KWPCRF, CDBG, KDHE
<u>Transportation</u>					
53 rd Street: 5 Lane Urban Section	\$7,250,000.00	\$1,450,000.00	\$2,175,000.00	\$10,875,000.00	WAMPO, KDOT ED, KDOT TEDL
53 rd Street R/W Acquisition	-	-	\$250,000.00	\$250,000.00	Partnerships with Sedgwick County
119 th Street: 3 Lane Urban Section	\$1,110,000.00	\$222,000.00	\$333,000.00	\$1,665,000.00	WAMPO, KDOT ED, KDOT TEDL
Rail Siding	\$1,600,000.00	\$320,000.00	\$480,000.00	\$2,400,000.00	KDOT ED, KDOT RAIL
<u>Wastewater Treatment Plant</u>					
Expansion of Existing Plant	\$500,000.00	\$100,000.00	\$150,000.00	\$750,000.00	KDHE, KWPCRF, CDBG
Total	\$18,000,000.00	\$3,600,000.00	\$5,750,000.00	\$27,350,000.00	