



Envision Shakopee

Sanitary Sewer Master Plan

City Council Meeting
February 5, 2019



SANITARY SEWER MASTER PLAN

Where We Are Today

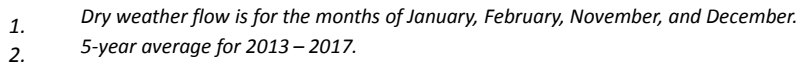
- Existing Sanitary Sewer System
- Historical Sanitary Sewer Flows
- Inflow & Infiltration (I/I)

Where We Are Headed

- Envision Shakopee Land Use
- Sewer Flow Projections
- Future Trunk System
- Conclusions & Recommendations



Year	Population	Average Annual Flow (MGD)	Peak Day Flow (MGD)	Average Annual Per Capita Flow (GPCD)
2008	35,630	3.22	4.97	90
2009	35,075	3.47	4.07	99
2010	36,946	3.82	4.99	103
2011	37,999	4.05	5.75	107
2012	38,765	3.42	5.42	88
2013	39,209	3.47	5.07	89
2014	39,552	3.09	7.04	78
2015	39,940	2.84	3.65	71
2016	40,521	2.82	4.20	70
2017	40,893	2.80	4.71	68
Average		3.30	4.99	75.2 ⁽²⁾



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Where We Are Today - Inflow and Infiltration (I/I)

Inflow - stormwater rainfall events (broken manhole covers, sewer cleanouts, sump pumps, foundation drains, and rain leaders)

Infiltration - groundwater gradually enters (cracks, openings in sewer mains, service laterals, joints, and deteriorated manholes)

Ten Year Average Flows (MGD)	Annual	Dry Weather	Peak Day
	3.30	3.03	4.99

MGD - million gallons per day

Ratio of Dry Weather/Annual = 0.92 (8% attributed to I&I)

Ratio of Peak Day/Annual = 1.52 (MCES peak factor is 3.10)

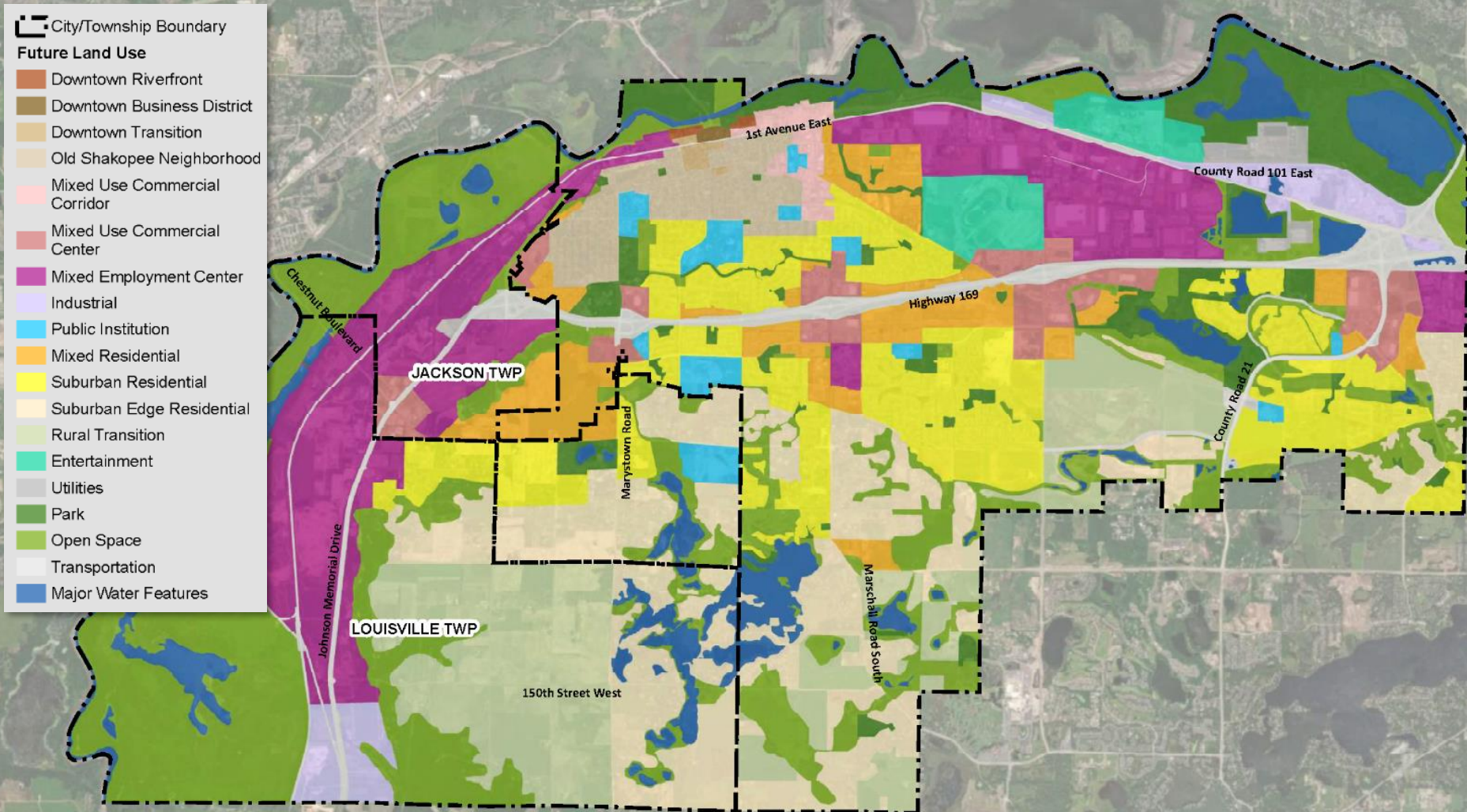
On-going I/I Mitigation Plan

- Continue Cleaning & Televising Sewers
- Continue Sewer Lining & Replacements
- Manhole Inspection & Repair (Sealing)
- Meter Flows (especially in wet weather)
- Adopt New Ordinances

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Where We Are Headed – Envision Shakopee Land Use



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Where We Are Headed – Sewer Flow Projections

Sanitary Sewer Flow Projections

Year	Projected Total Average Annual Flow (MGD)
	M402S
2020	3.74
2025	4.09
2030	4.66
2035	5.17
2040	5.49

Note :
Avg. for Past 10
Years =
3.30 MGD

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Where We Are Headed – Future Trunk System

- Most of the City's trunk system has been constructed.
- Trunk system will be expanded or upgraded as development proceeds.
- Current System has capacity to accommodate 2040 population and land use.
- On-going review of future development.
- On-going maintenance, rehabilitation and I/I reduction efforts.

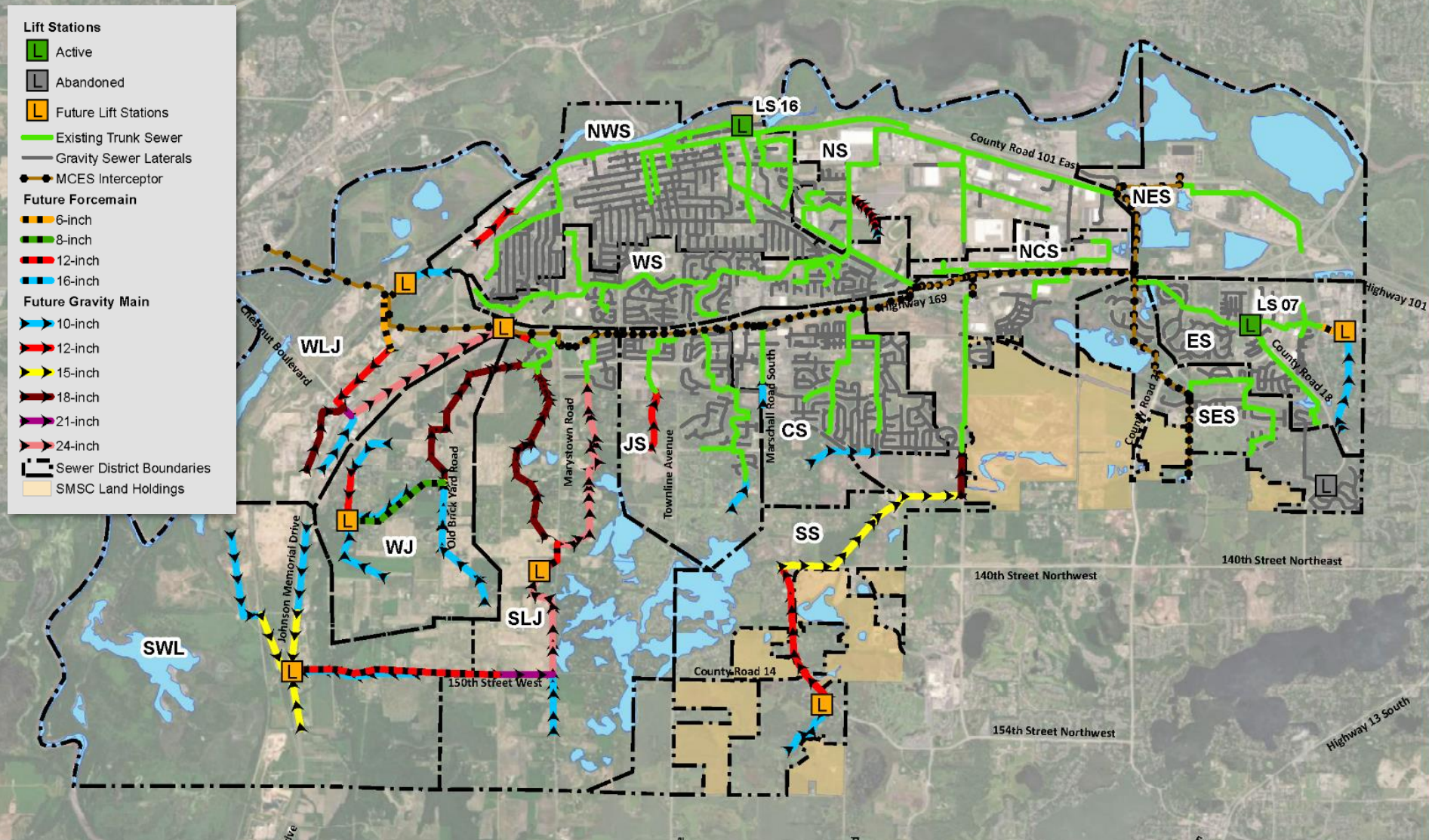


*The existing
system can meet
future demands
based on Envision
Shakopee
planning*

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Where We Are Headed – Future Trunk System (Alt 1)

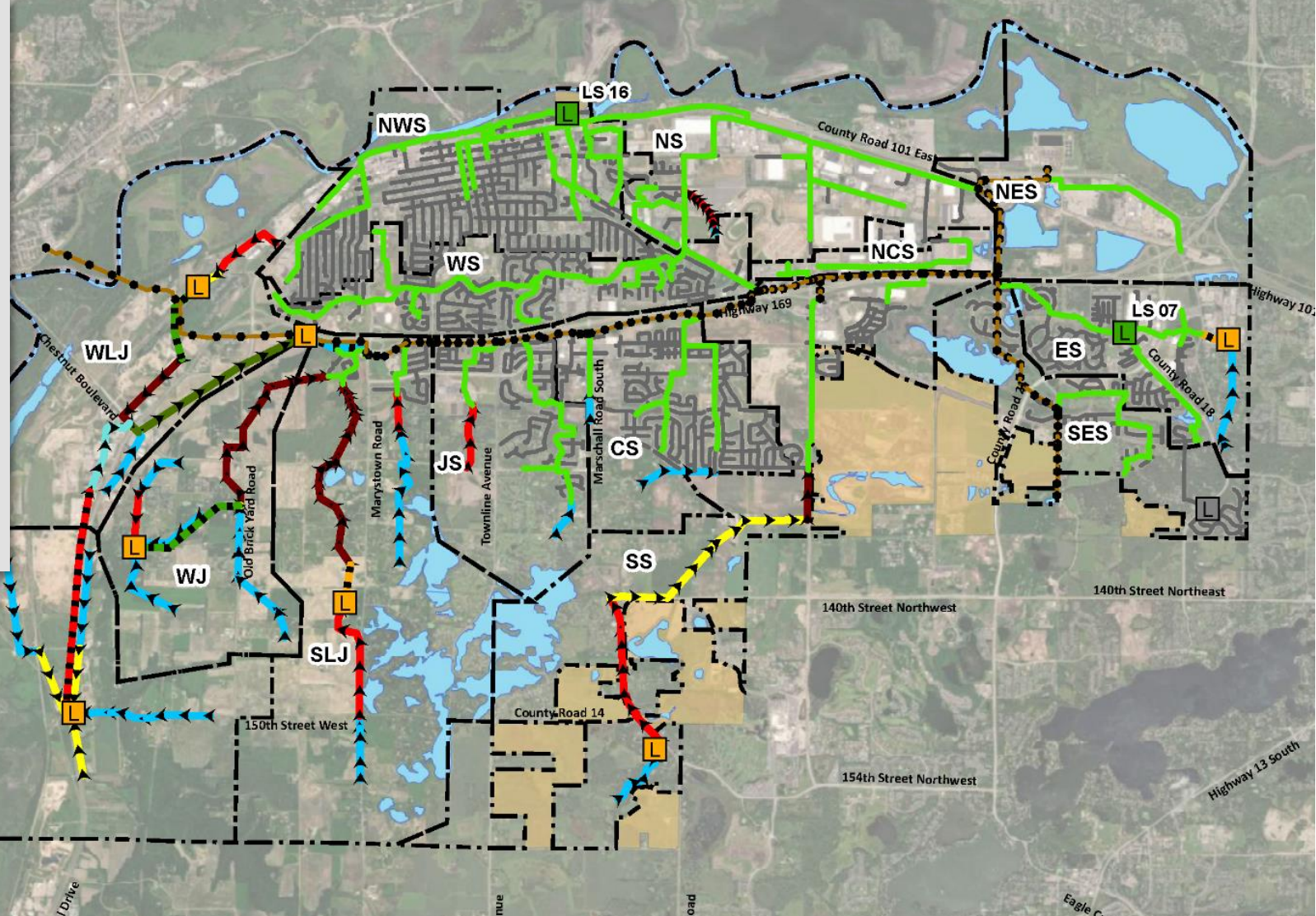


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Where We Are Headed – Future Trunk System (Alt 2)

- Lift Stations**
 - Active
 - Abandoned
 - Future Lift Stations
- Existing Trunk Sewer**
- Gravity Sewer Laterals**
- MCES Interceptor**
- Future Forcemain**
 - 6-inch
 - 8-inch
 - 12-inch
 - 16-inch
- Future Gravity Main**
 - 10-inch
 - 12-inch
 - 15-inch
 - 18-inch
 - 21-inch
 - 27-inch
 - 36-inch
- Sewer District Boundaries**
- SMSC Land Holdings**



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Where We Are Headed – Future Trunk System Costs

District	Estimated Trunk System Cost	
	Alternate No. 1	Alternate No. 2
NES	\$0	\$0
NS	\$165,000	\$165,000
NCS	\$0	\$0
NWS	\$184,000	\$0
WS	\$0	\$0
ES	\$822,000	\$822,000
SES	\$0	\$0
CS	\$272,000	\$272,000
SS	\$2,198,000	\$2,198,000
JS	\$307,000	\$307,000
SLJ	\$4,808,000	\$2,773,000
WJ	\$2,827,000	\$2,827,000
WLJ	\$3,693,000	\$5,927,000
SWL	\$3,103,000	\$3,093,000
TOTAL	\$18,379,000	\$18,384,000

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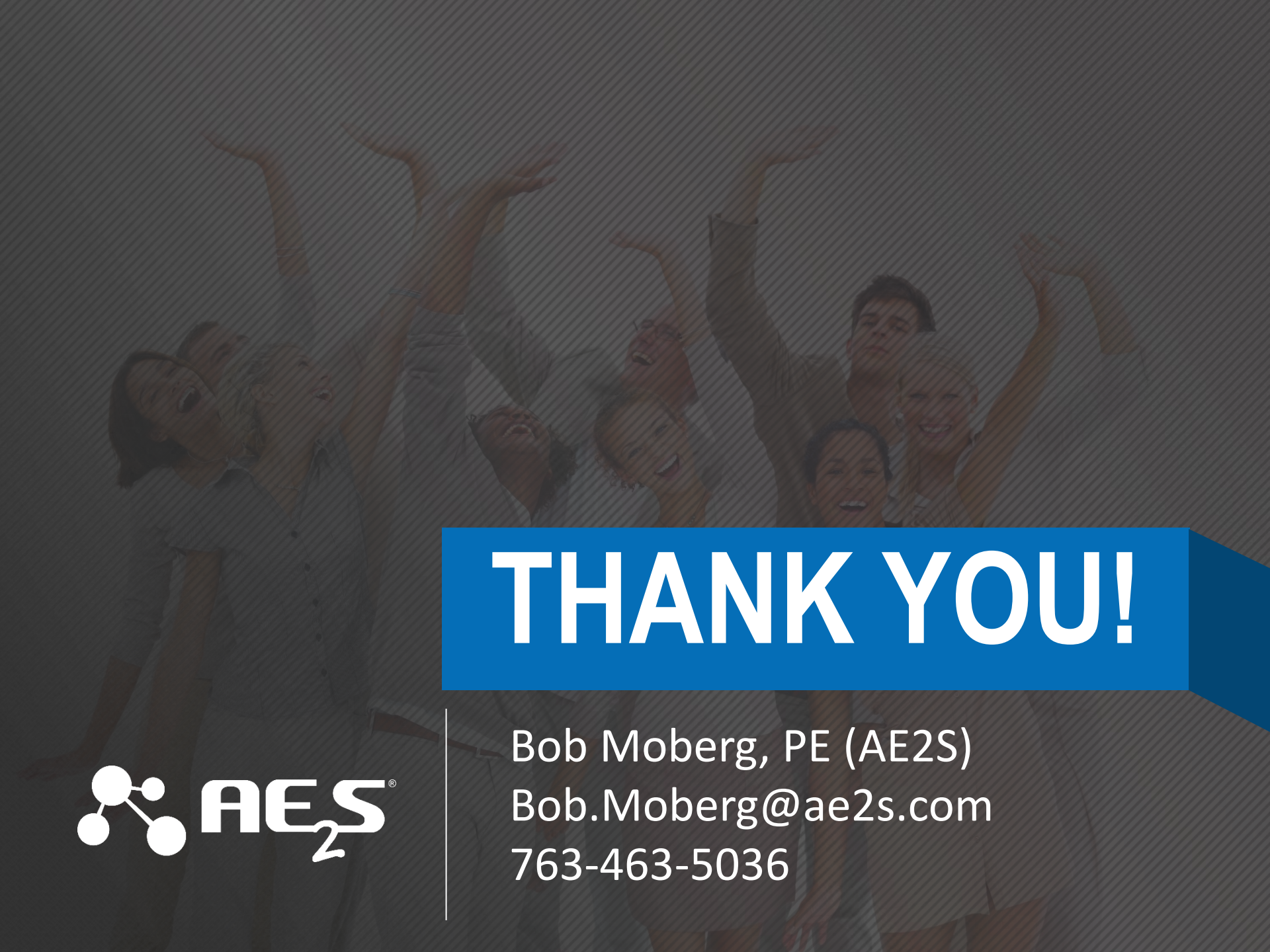


Where We Are Headed – Conclusions & Recommendations

- Existing system generally is in good condition.
- Continue system maintenance and rehabilitation programs.
- Address I/I reduction efforts as opportunities arise.
- Assess condition of lift station L16.
- Expand or upgrade trunk system as development proceeds.
- Consider orderly annexation agreement with Louisville Township.
- Install flow meters at strategic locations in existing system.



*The existing system
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Envision Shakopee
planning*



THANK YOU!



Bob Moberg, PE (AE2S)
Bob.Moberg@ae2s.com
763-463-5036