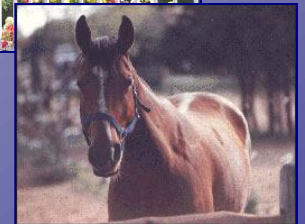
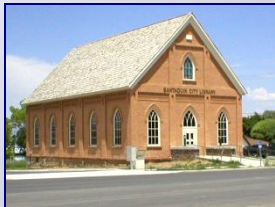
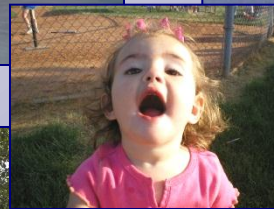
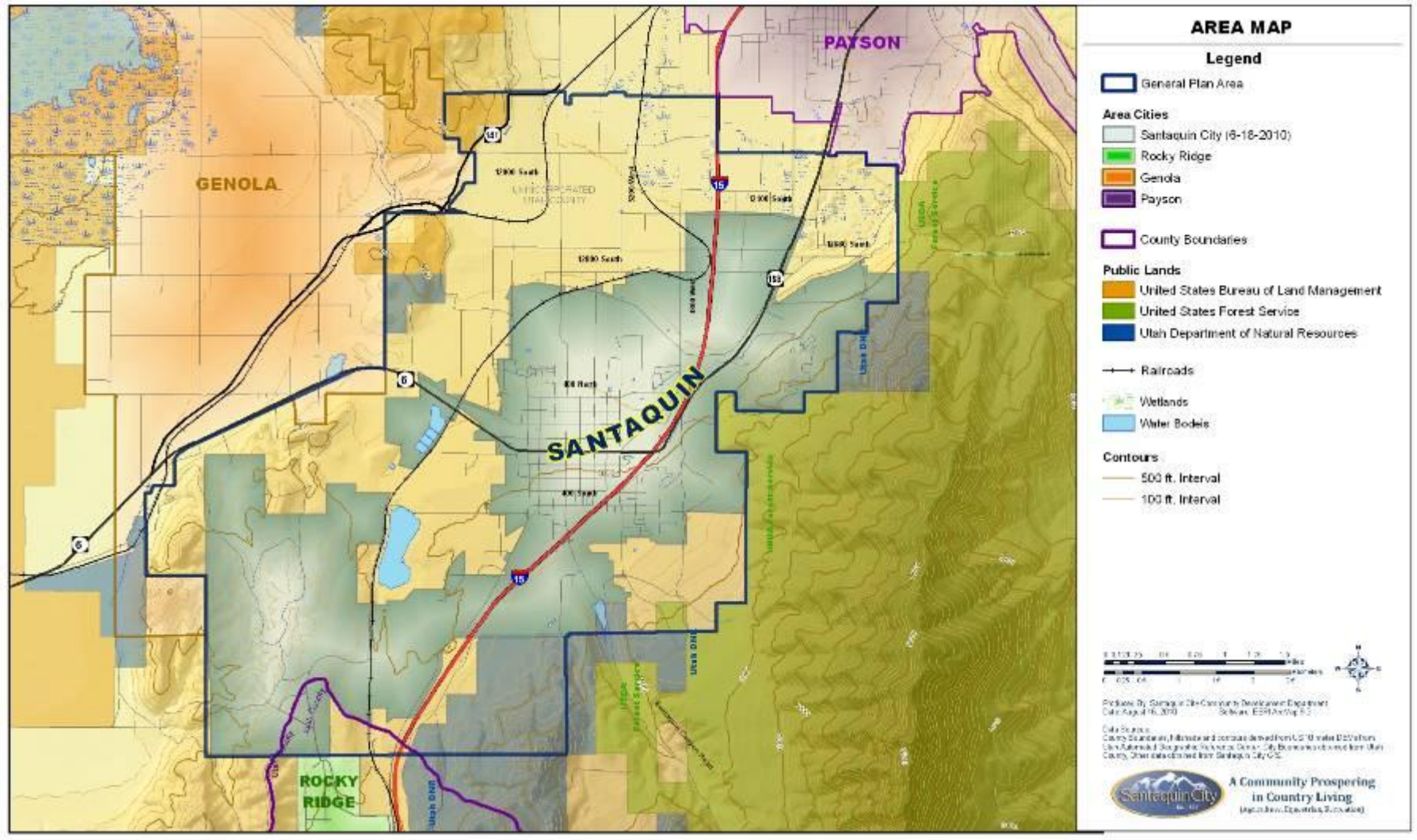


The Future of Santaquin & the SE Core Area



Presented by
Ben Reeves, City Manager
Dennis Marker, Community Development Director

Santaquin . . . Planning



Time to Re-Evaluate City's Long Range Goals and Opportunities

Santaquin . . . Planning

2007 Plan Uses

Natural Open Space and Sensitive Land Protection

Orchard Preservation Areas

Residential Low Density – Ranchettes

Foothill Residential Clustering

Core Area Mixed Use Residential

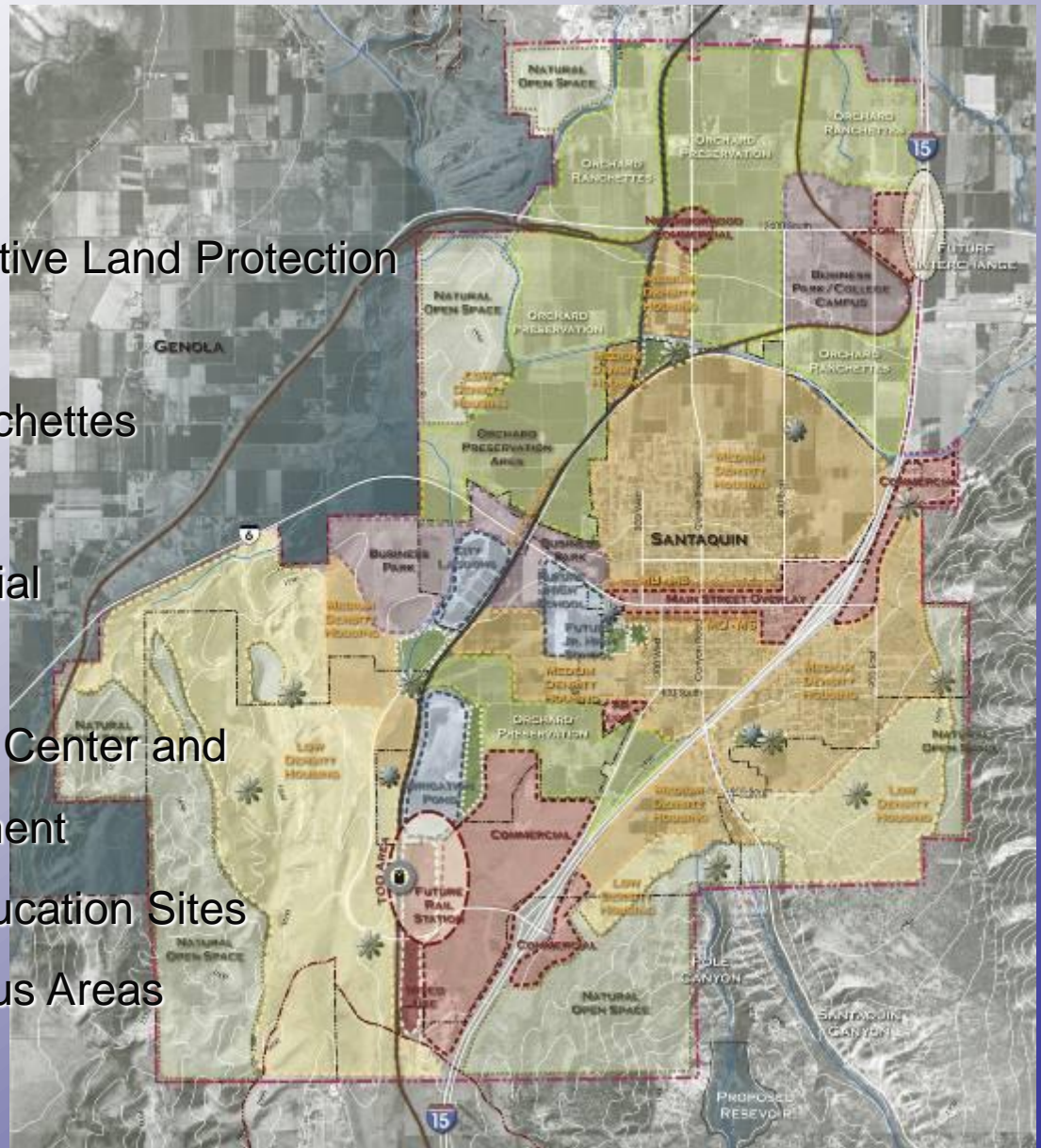
Main Street Mixed Use District

Regional Mixed Use Economic Center and

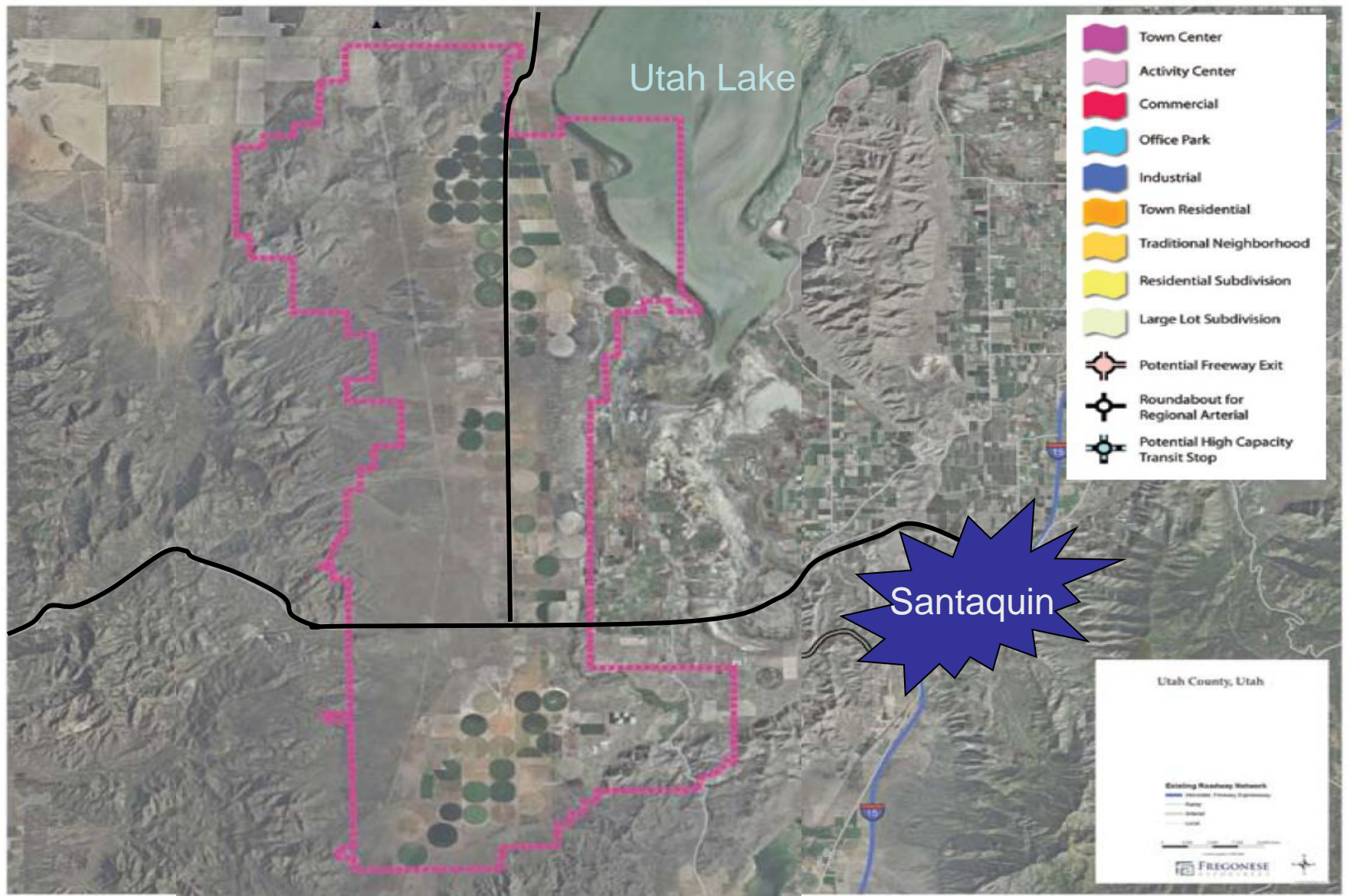
Transit Oriented Development

Elementary and Secondary Education Sites

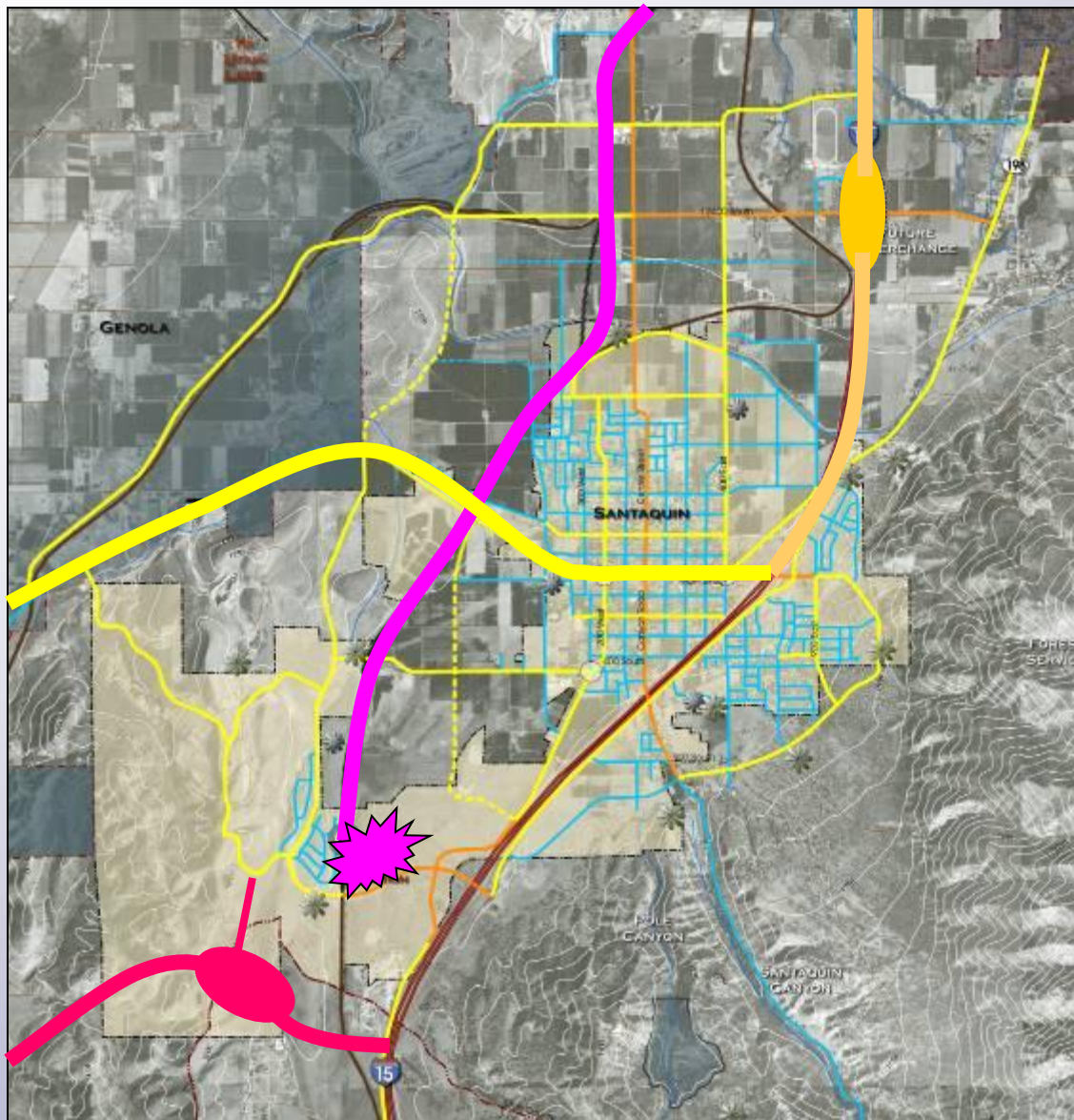
Business Park / College Campus Areas



Santaquin . . . Economic Crossroads



Santaquin . . . Economic Crossroads



**Cross-roads of
Southern Utah County
and Gateway to the
Wasatch Front**

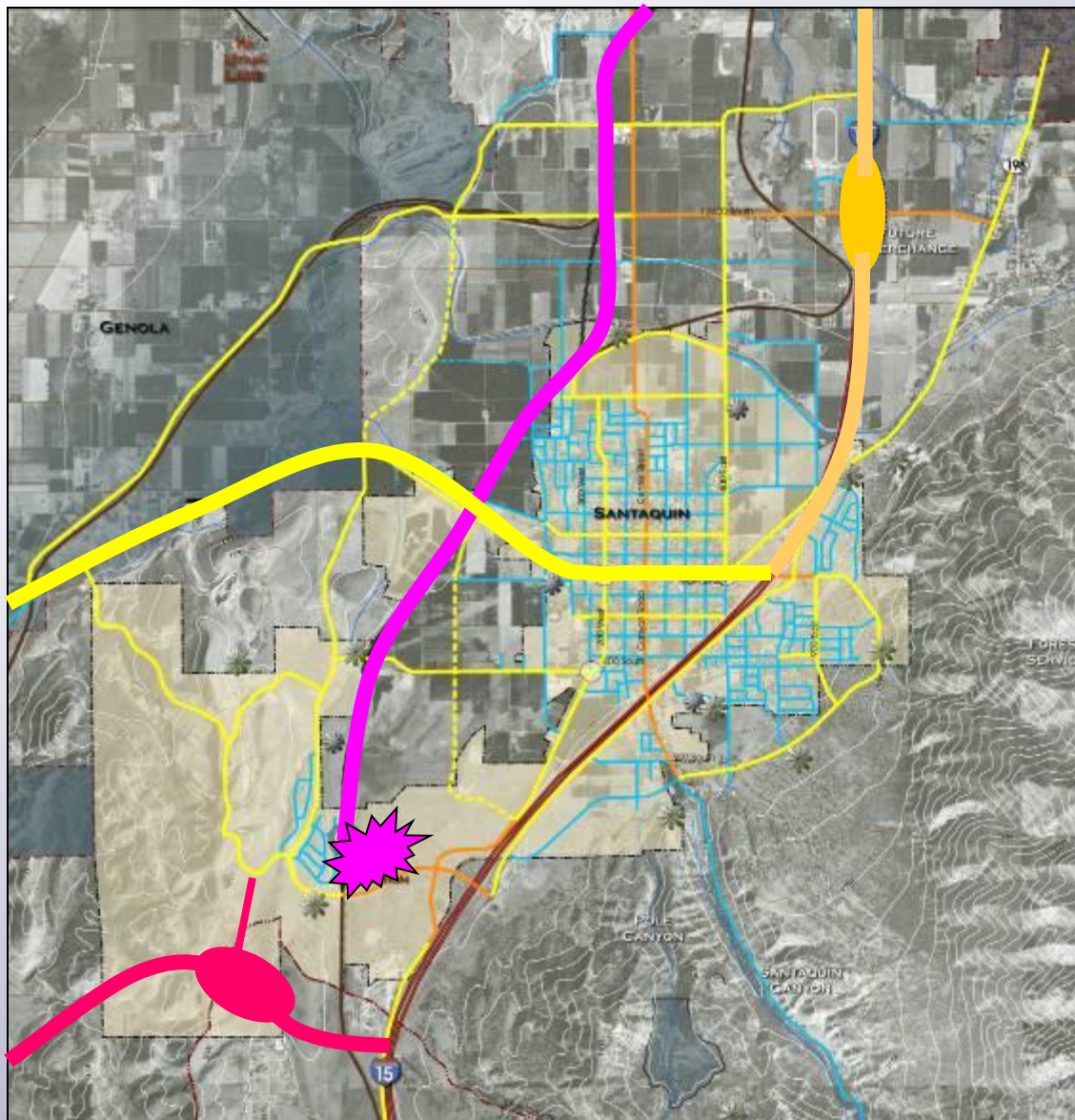
Main Street (Highway to 6)

**I-15 Connections and
improvements**

**Commuter Rail
Terminus**

**Future Freeway
System to
Goshen Valley**

Santaquin . . . Economic Crossroads



**Cross-roads of
Southern Utah County
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**Commuter Rail
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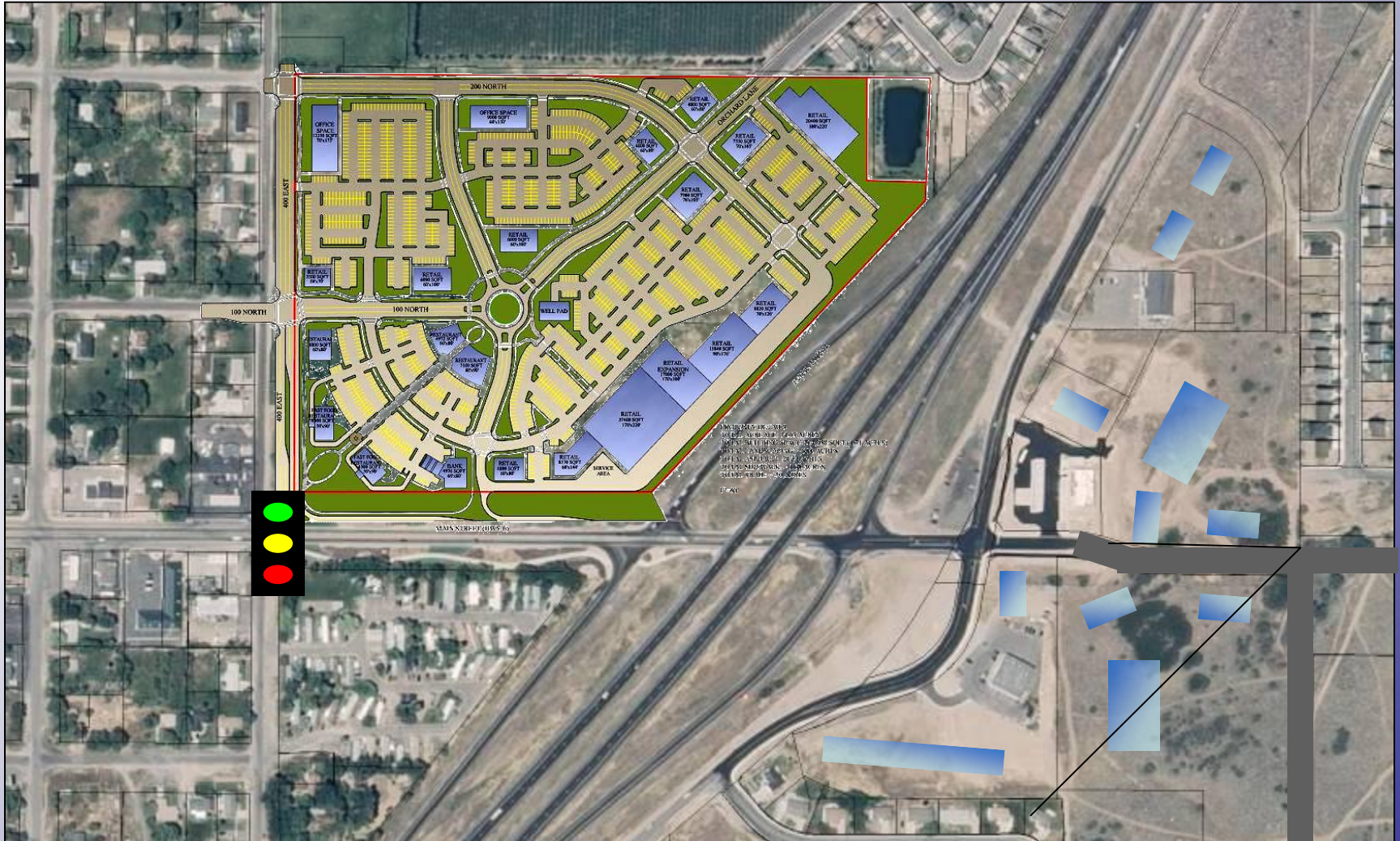
**Future Freeway
System to
Goshen Valley**

Santaquin . . . Planning Economics



Santaquin Main Street

Santaquin . . . Planning Economics



Santaquin . . . Growing Pains

Recognition of City Service and Infrastructure Needs

Parks, Recreation, Open Space and Trails

Water System (Culinary and Pressurized Irrigation)

Circulation (Roads, Mass Transit, Pedestrian)

Storm Water (Flood hazard mitigation)

Public Safety (Police, Fire, Ambulance)

Economic Base

Natural Hazards Assessment

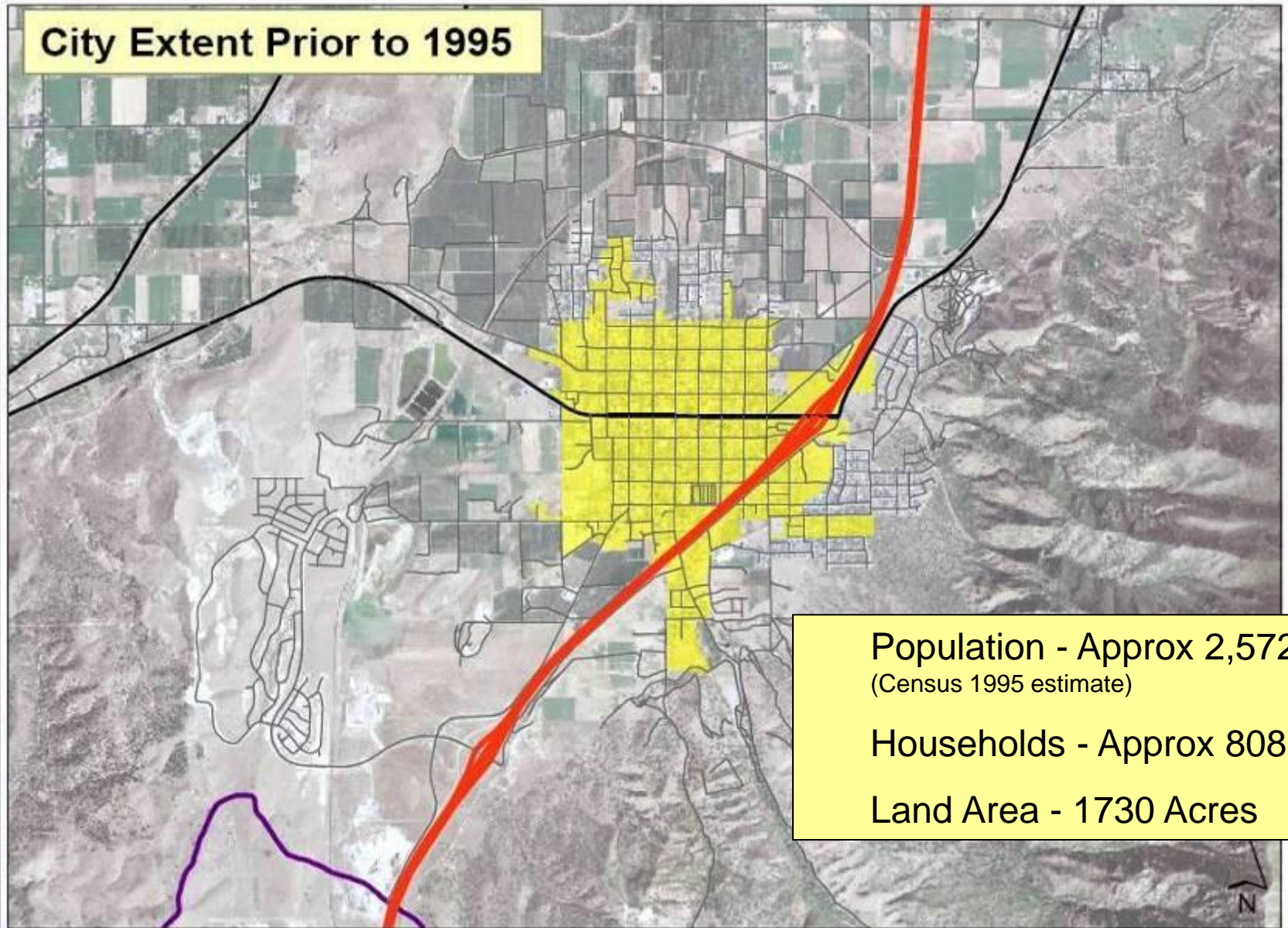
Waste Water Collection and Treatment



Santaquin . . . Waste Water History

- 1991: Citizens vote (3:1) in favor of having a City waste water system.
- 1991-1994: City evaluated location and options for treatment included partnering with Payson, Lagoons, or mechanical treatment (Sunrise, 1991).
- 1992-1995: City bonds for and constructs Lagoon treatment plant. (designed for 0.49 MGD or 4,939 residents.)

Santaquin . . . Agreements



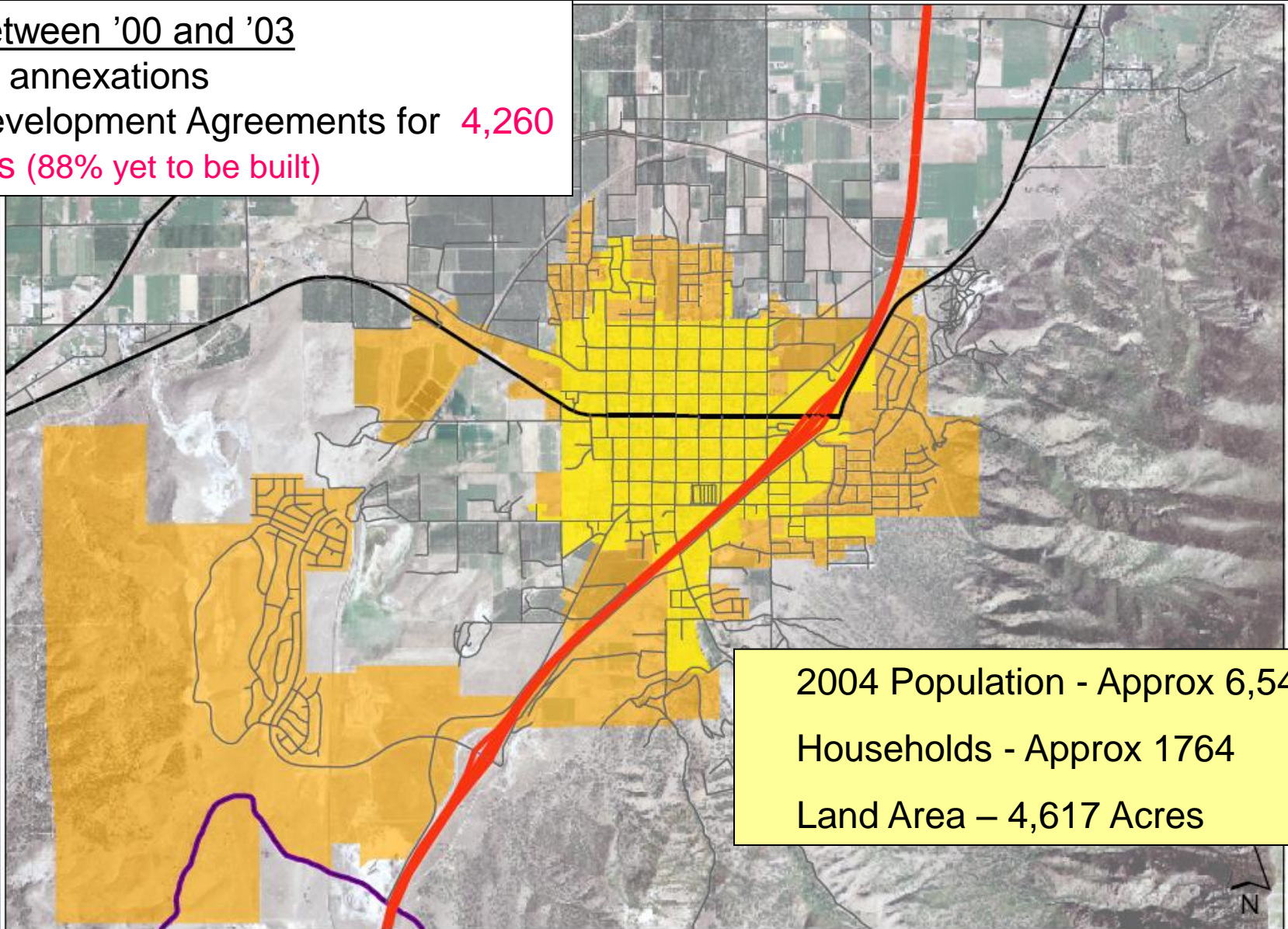
Santaquin . . . Agreements '00 to '03

Between '00 and '03

20 annexations

Development Agreements for 4,260

lots (88% yet to be built)



2004 Population - Approx 6,545

Households - Approx 1764

Land Area – 4,617 Acres

Santaquin . . . Waste Water History

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- 2001: Regional Sewer Plant studied (SUVVWA, 2001)
- 2002: After unprecedented growth Santaquin studies options for expansion including partnering with Payson, regional sewer plant, mechanical treatment, lagoons expansion. City Council decides to expand lagoons (up to 1 Mgd) and begin phased funding for a mechanical plant (May, 2002).
- 2003: Completion of additional winter storage but no added capacity.

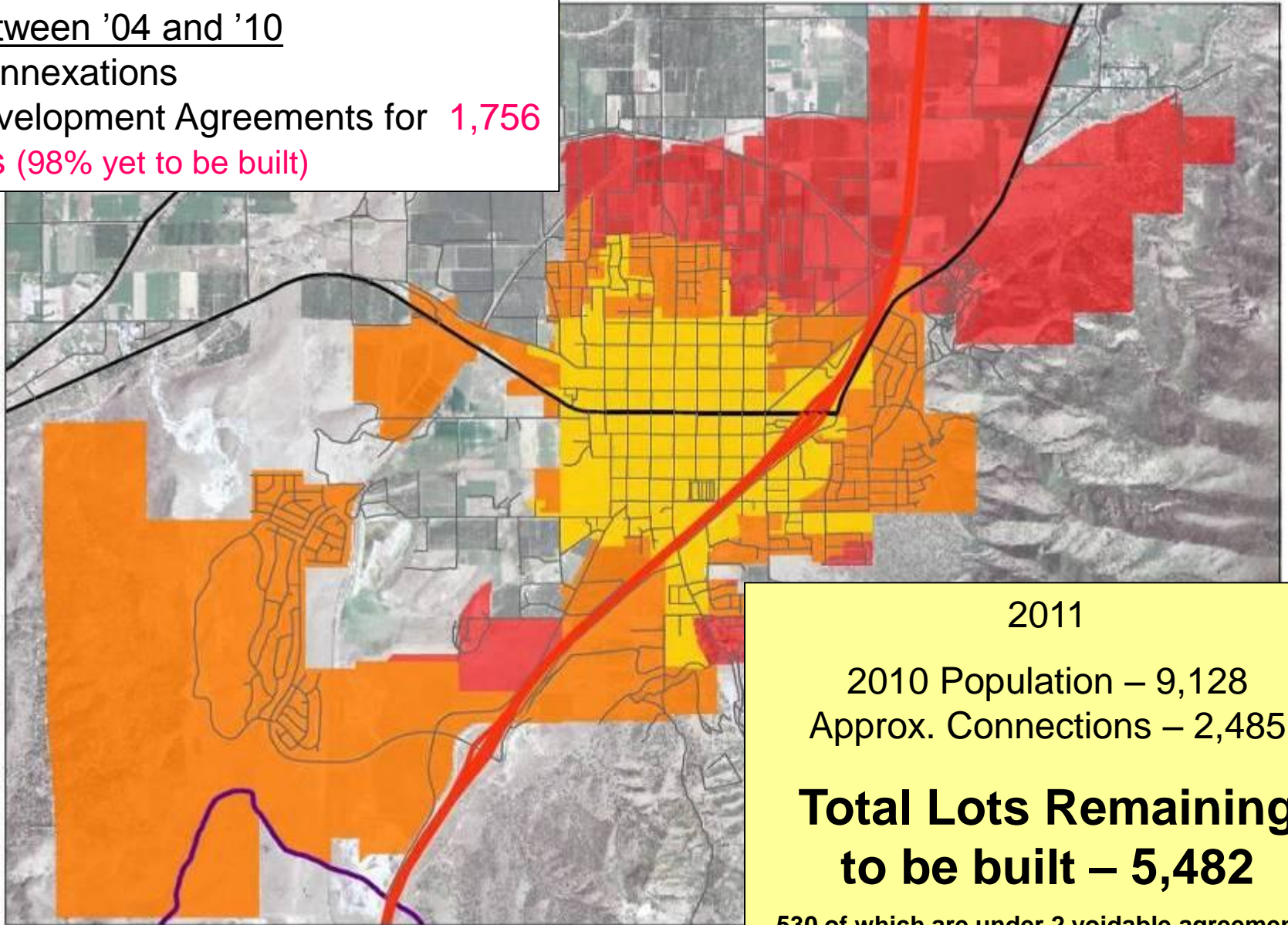
Santaquin . . . Present

Between '04 and '10

5 annexations

Development Agreements for 1,756

lots (98% yet to be built)

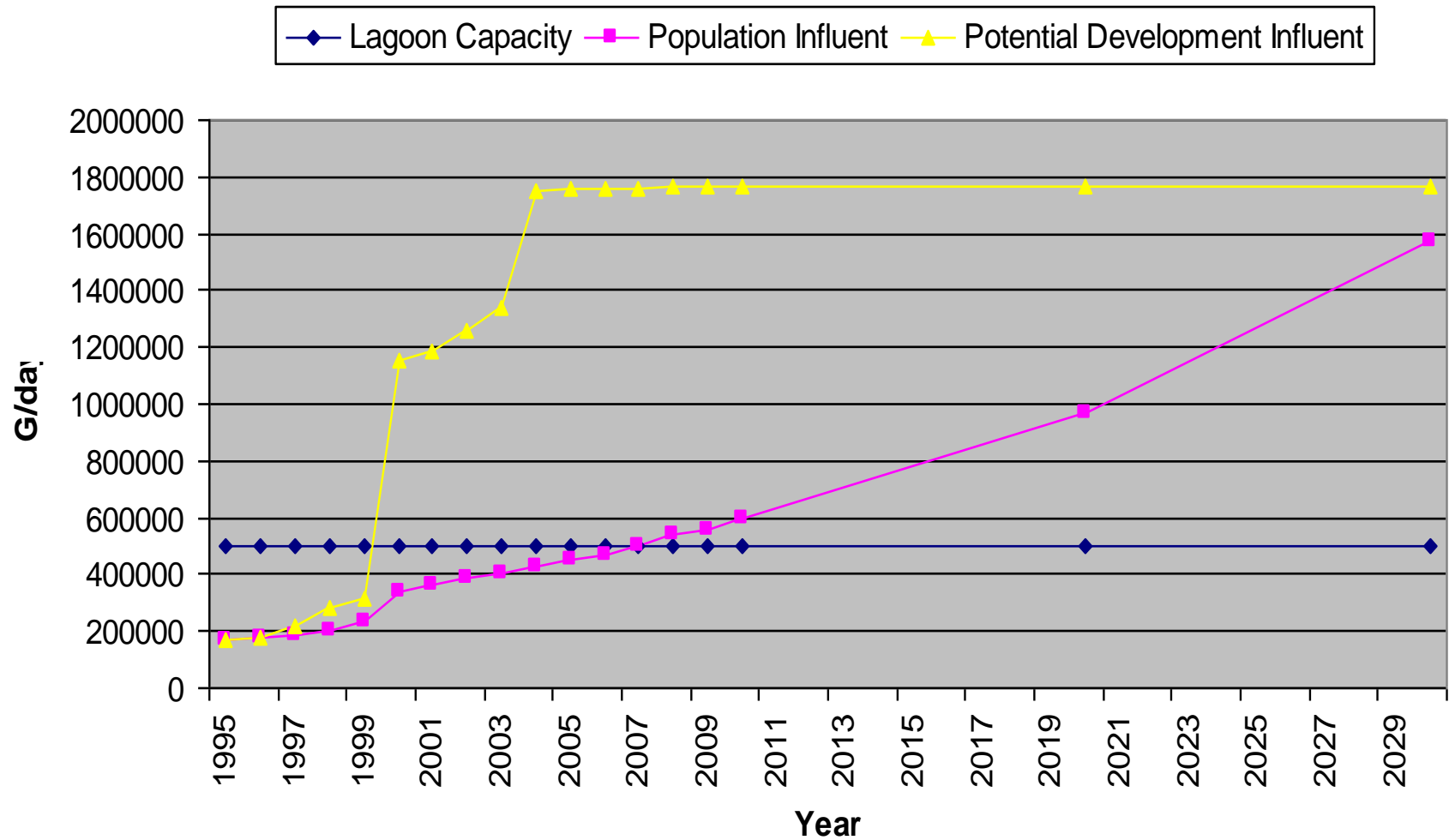


Santaquin . . . Waste Water History

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- 2003: Completion of additional winter storage but no added capacity.
- 2005: Study conducted to consider best lagoon/mechanical options.
- 2006-2009: City study to reconsider long-term treatment options and mechanical plant technologies before funding additional expansions while facing system failure concerns.

Santaquin . . . Waste Water Capacity

Lagoon Capacity vs Development

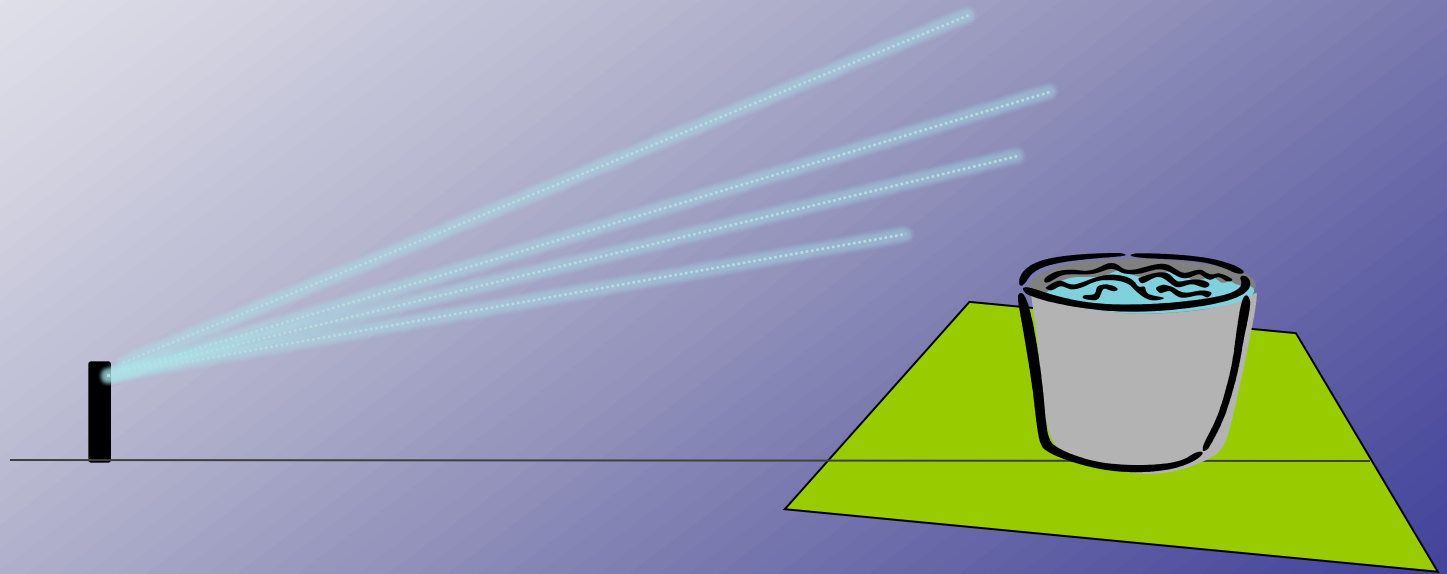


Santaquin . . . Waste Water Disposal

Currently 48.5 Acres of irrigable ground

State allows max. of 4.15 c.f. per ft.

(letter from DEQ dated April 4, 2004).



Santaquin . . . Waste Water Disposal

- **Over-applying 2.8 times the amount of water authorized by the State.***
- **Concerns about aquifer pollution due to Type II water loading.**
- **City needs 62.5 more acres to comply with State standards now.***



Santaquin . . . Waste Water Collection

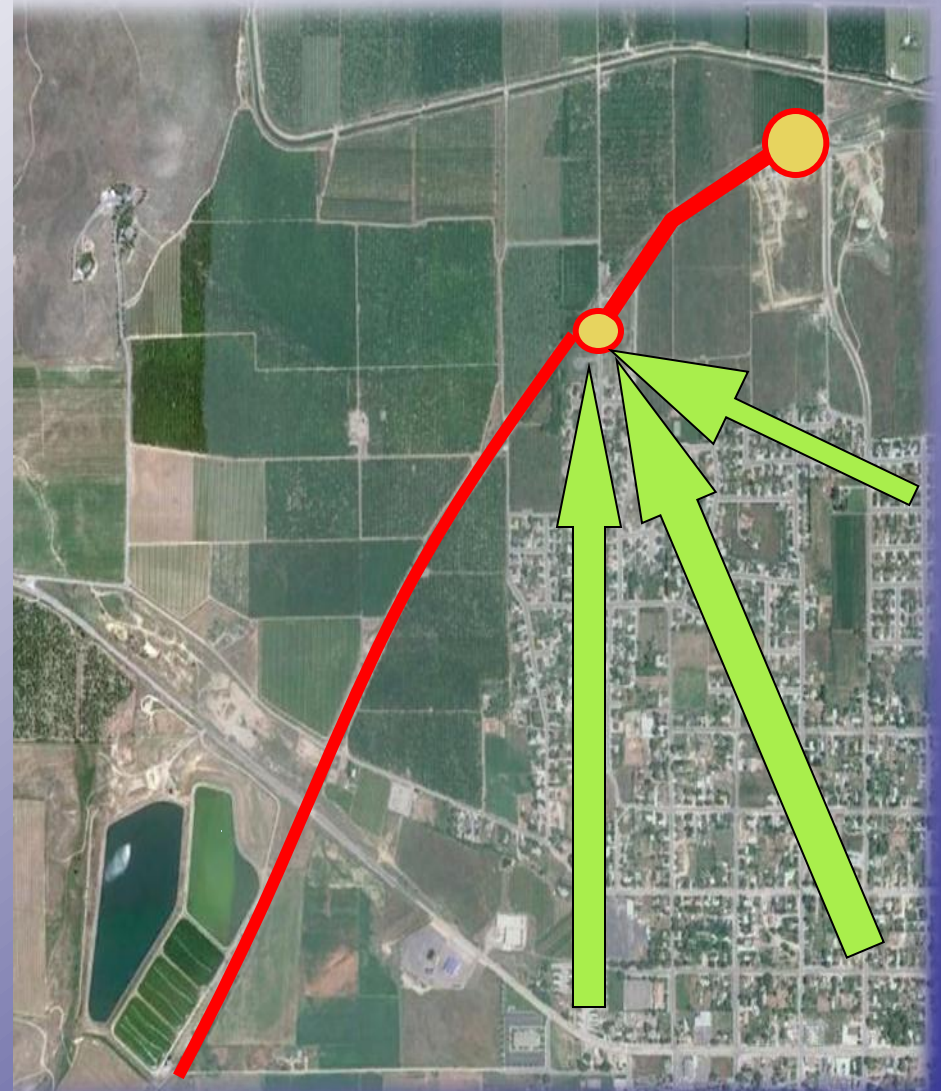
Nearly 60% of City waste water is pumped up from 420 West lift station.

Station includes two pumps designed to pump 550 gpm individually (approx. 850 gpm together). Current flows through system are requiring both pumps to operate during peak hour flows.

State law requires one standby at all times.

“Your pump is maxed out. The amount of inflow has increased beyond the original design conditions of these pumps.”

Pump supplier letter dated March 2, 2011,



New Center Street pump station will pump into the 420 West station at a 1,000 gpm rate.

Santaquin . . . Decision Factors



Pushing Heavy Liquids

Retaining and **Reusing water**



Longevity of the Solution

Transitioning Lagoons
for revenue



Balloon Items



Santaquin . . . Decision Factors



Retaining **Control** of OUR future

Impact to Residential Properties and New Development



Winter Storage Capacity

Annual Cost to the City's Budget and Residents



Santaquin . . . Waste Water Funding

- 2011: Final Funding Package obtained by the Mayor

Agency	Loan	Term	% Rate	Grant	Totals
USDA	\$2.91 Million	40 y	3.375	\$4.95 Million*	\$7.86 Million
Utah DWQ	\$6.93 Million	20 y	1.000		\$6.93 Million
CUP				\$1.00 Million**	\$1.00 Million**
EPA				\$0.35 Million	
City Match					\$2.035 Million
Totals	\$9.84 Mill.			\$6.30 Million	\$18.175 Million

* USDA money and grants are tied to the proposed MBR location and the City having a population less than 10,000 pop. Grant money can only be used after loans are expended.

** CUP Grant for reuse of water.

Annual Cost to City =
\$513,716

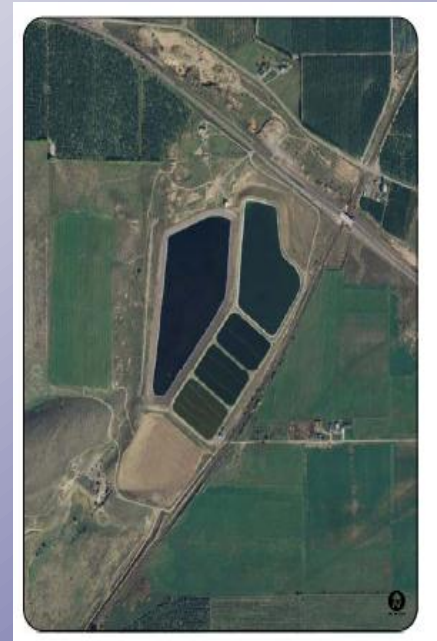
\$63,000 less than anticipated

- All loans must be spent before grant money can be utilized.
- \$20 rate increase last year covers new debt and O&M
- Repayment of loans is based on 0% growth (i.e. unanticipated fees collected from new development can be applied directly to principle and O&M)
- Funding package can be used for any option considered through 2006-09 study.

Santaquin . . . Waste Water Options

Common Treatment Technologies

- Lagoons
- Aerobic Activated or Fixed Film Process
- Membrane Bioreactor



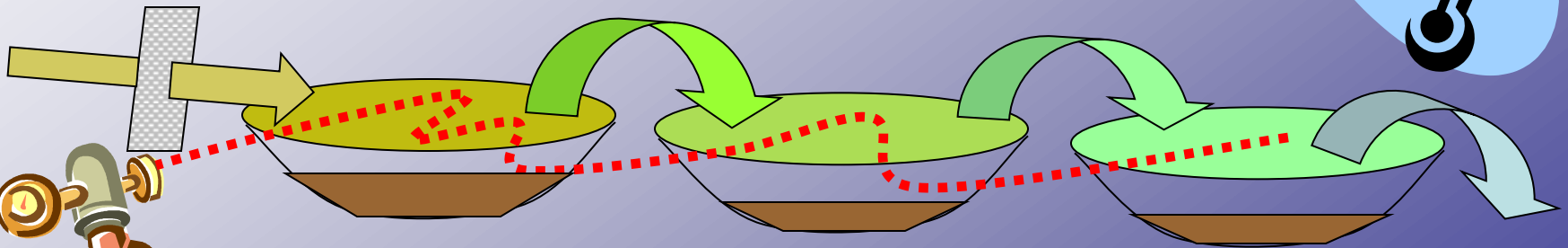
Treatment Facilities

Sewer Lagoons

In a lagoon system the water flows from one pond to another and gets cleaner as it flows.

Oxygen is added to ponds to help bug growth and reduce water cleaning time

Temperature plays a major role in bug activity and water evaporation. More sun heat = more bug eat.



Bugs settle to the bottom of the ponds and must be dredged out to maintain capacity of the system.

These facilities require a lot of area



Treatment Facilities

Sewer Lagoons

Total Treatment facility area is over 100 acres.

Each bug pond is 4 acres in size.

Can't make Type I without mechanical processing being added.

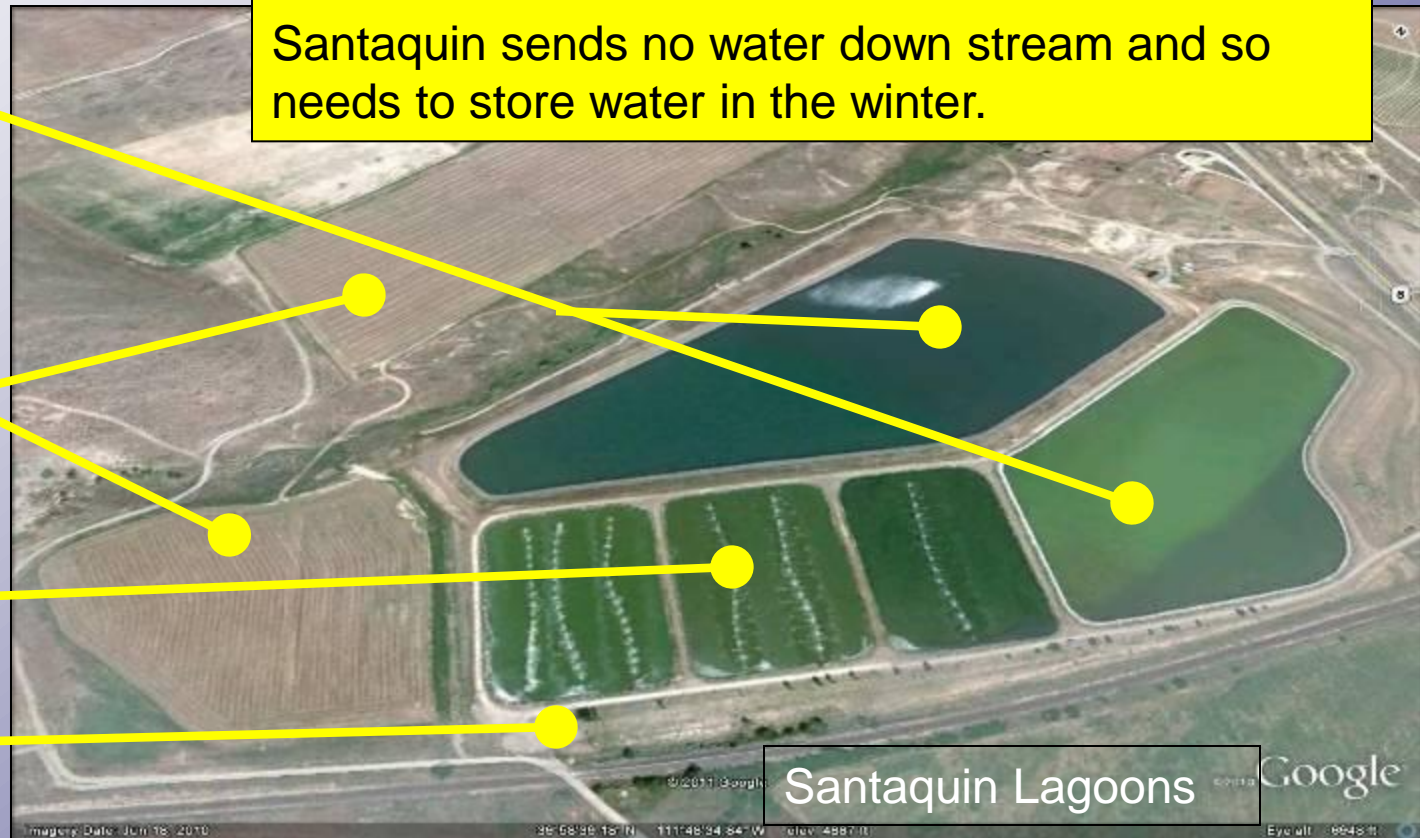
Santaquin sends no water down stream and so needs to store water in the winter.

Winter Storage Ponds

Crop Irrigation with Type II water

Bug Ponds with oxygen chains

Water Screen



Treatment Facilities

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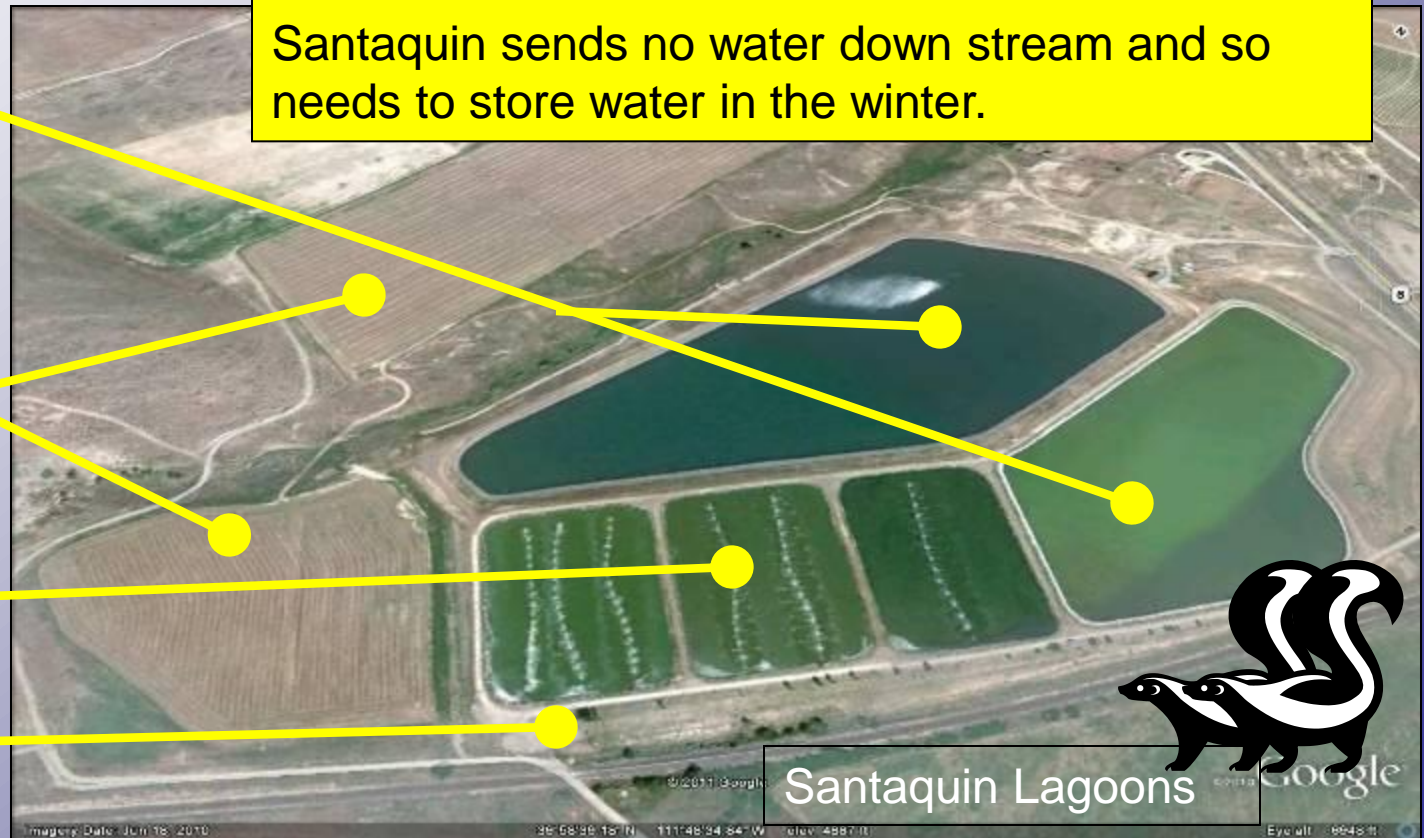
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Winter Storage Ponds

Crop Irrigation with Type II water

Bug Ponds with oxygen chains

Water Screen



Santaquin Lagoons

Google

Santaquin . . . Waste Water Options

- Lagoon Treatment

- Expand Lagoons and continue to land apply effluent water.

Push Water	Reuse Water	Longevity	Change Lagoons	Future Control	Growth Impact	Winter Stores	Annual Cost	Balloon	Save \$1.9M
------------	-------------	-----------	----------------	----------------	---------------	---------------	-------------	---------	-------------

Advantage	Disadvantage
Utilizes existing investment	Continue pumping raw sewage up hill
O&M costs are relatively low	Water can't be reused
Land could be sold in future	Cost of Land Acquisition (444ac over 20y)
Preserve control of water	Odor potential
	Devalues surrounding properties
	Inconsistent with General Plan

Santaquin . . . Waste Water Options

- Lagoon Treatment

- Expand Lagoons and send water to Utah Lake.

Push Water	Reuse Water	Longevity	Change Lagoons	Future Control	Growth Impact	Winter Stores	Annual Cost	Balloon	Save \$1.9M
------------	-------------	-----------	----------------	----------------	---------------	---------------	-------------	---------	-------------

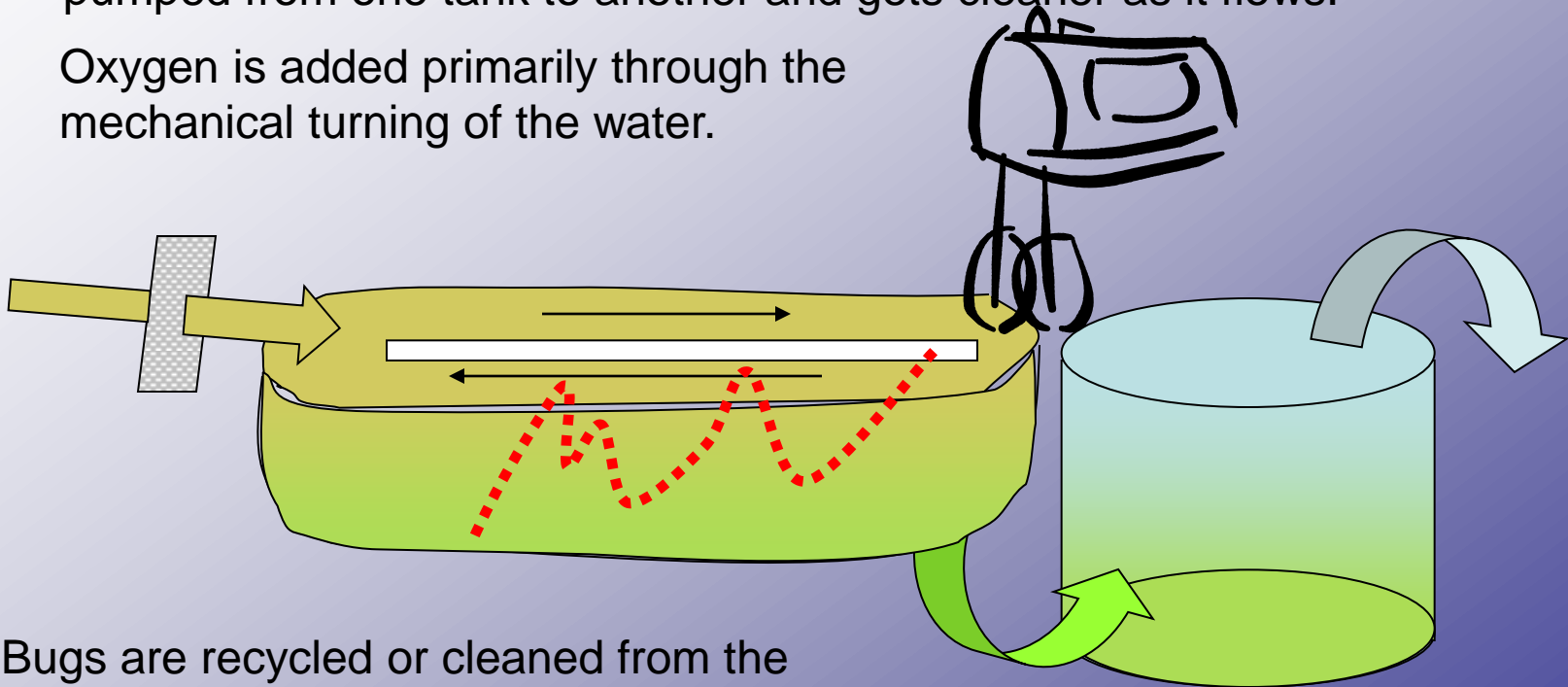
Advantage	Disadvantage
<ul style="list-style-type: none"> Utilizes existing investment O&M costs are relatively low Lower initial capital cost 	<ul style="list-style-type: none"> Continue pumping raw sewage up hill Giving away “water rights” Temporary fix - Mechanical plant will be required to meet Utah Lake standards. Inconsistent with General Plan

Treatment Facilities

Mechanical Ditch Systems

In a ditch system water flows into large mixing bowl type tanks. It may be pumped from one tank to another and gets cleaner as it flows.

Oxygen is added primarily through the mechanical turning of the water.



Bugs are recycled or cleaned from the tanks through pumping processes.

These facilities require roughly 1/3 of the area that Lagoons need.

Treatment Facilities

Mechanical Ditch Systems

At this facility the water screen and bug disposal are inside buildings with air scrubbers to reduce odor.

Bug ponds are oxygenated and churned to speed up the process. These tanks smell like freshly plowed soil.

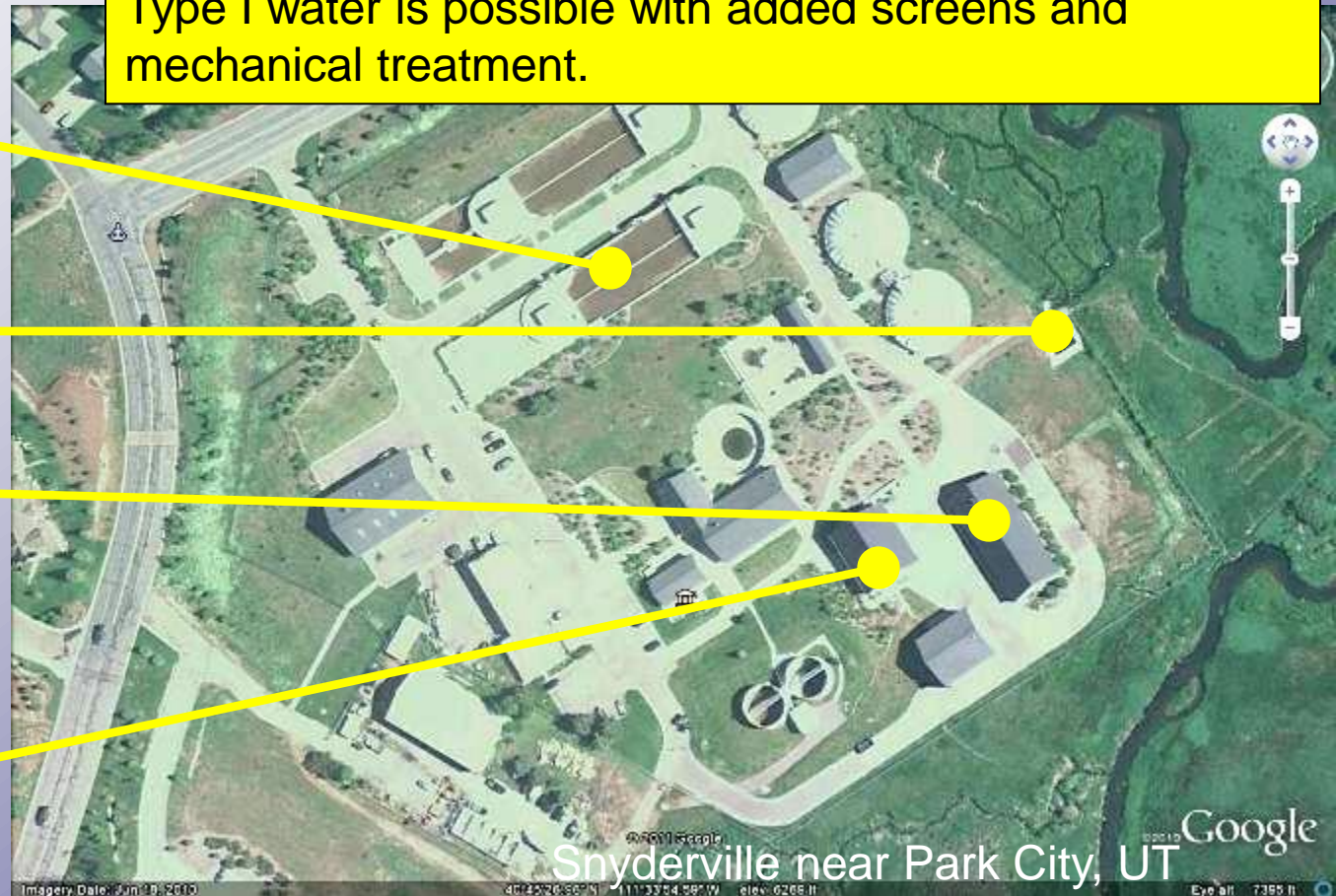
Type I water is possible with added screens and mechanical treatment.

Bug Ponds

Discharge to
Stream

Bug Disposai

Water Screen



Treatment Facilities

Mechanical Ditch Systems

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Bug ponds are oxygenated and churned to speed up the process. These tanks smell like freshly plowed soil.

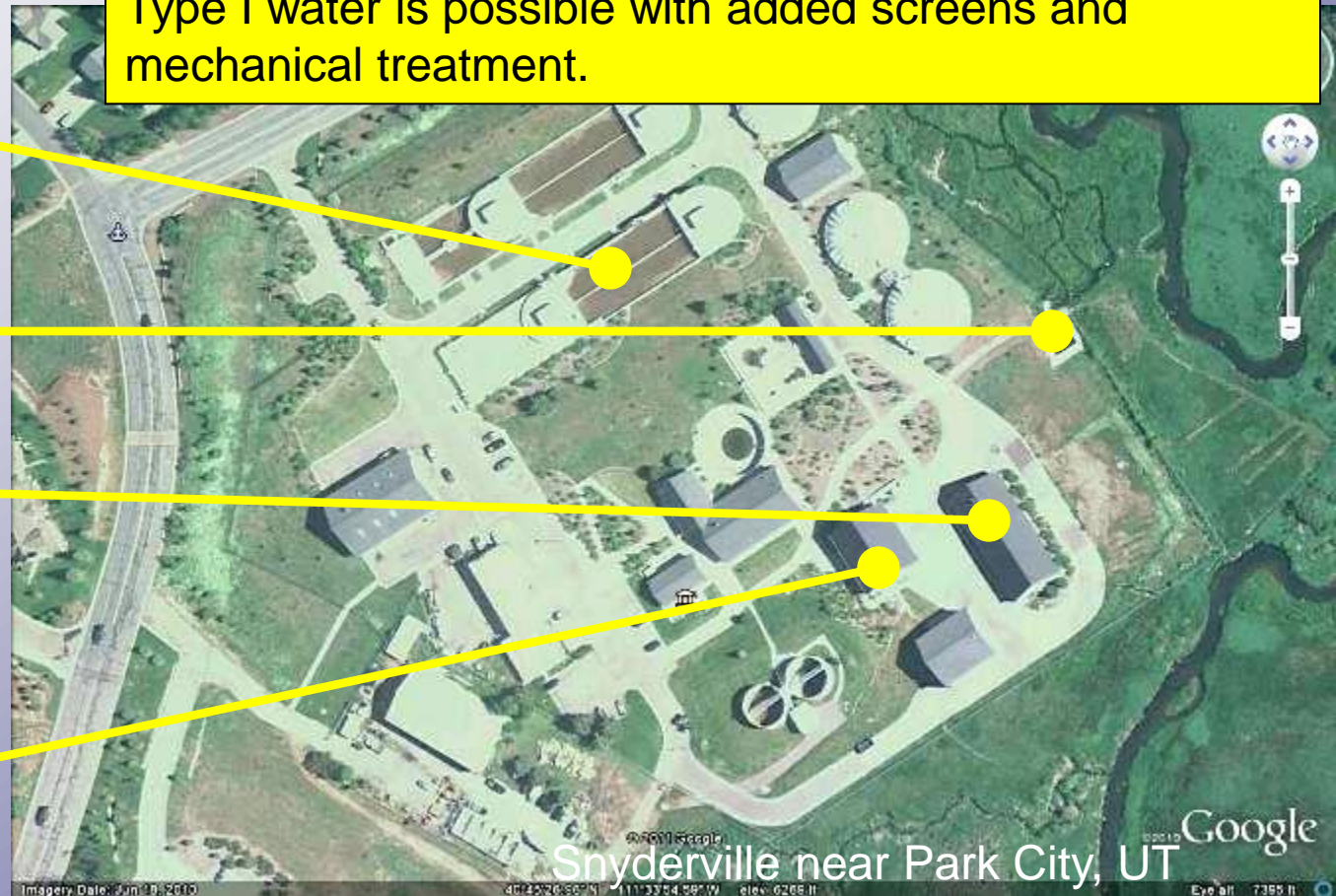
Type I water is possible with added screens and mechanical treatment.

Bug Ponds

Discharge to Stream

Bug Disposal

Water Screen



Santaquin . . . Waste Water Options

- Payson Treatment

Push Water	Reuse Water	Longevity	Change Lagoons	Future Control	Growth Impact	Winter Stores	Annual Cost	Balloon	Save \$1.9M
------------	-------------	-----------	----------------	----------------	---------------	---------------	-------------	---------	-------------

Advantage	Disadvantage
<p>Sharing of resources between two cities</p> <p>Lagoon area can be used for Business Park</p> <p>Lower initial capital cost than some of the other options</p> <p>Primarily gravity flow system down to Payson</p>	<p>Payson could dictate our future growth</p> <p>No control over future Payson fees</p> <p>Lower likelihood of reusing water unless additional costs & pumps</p> <p>Cost to Santaquin to fund Payson upgrades to meet Utah Lake water standards</p>

Treatment Facilities

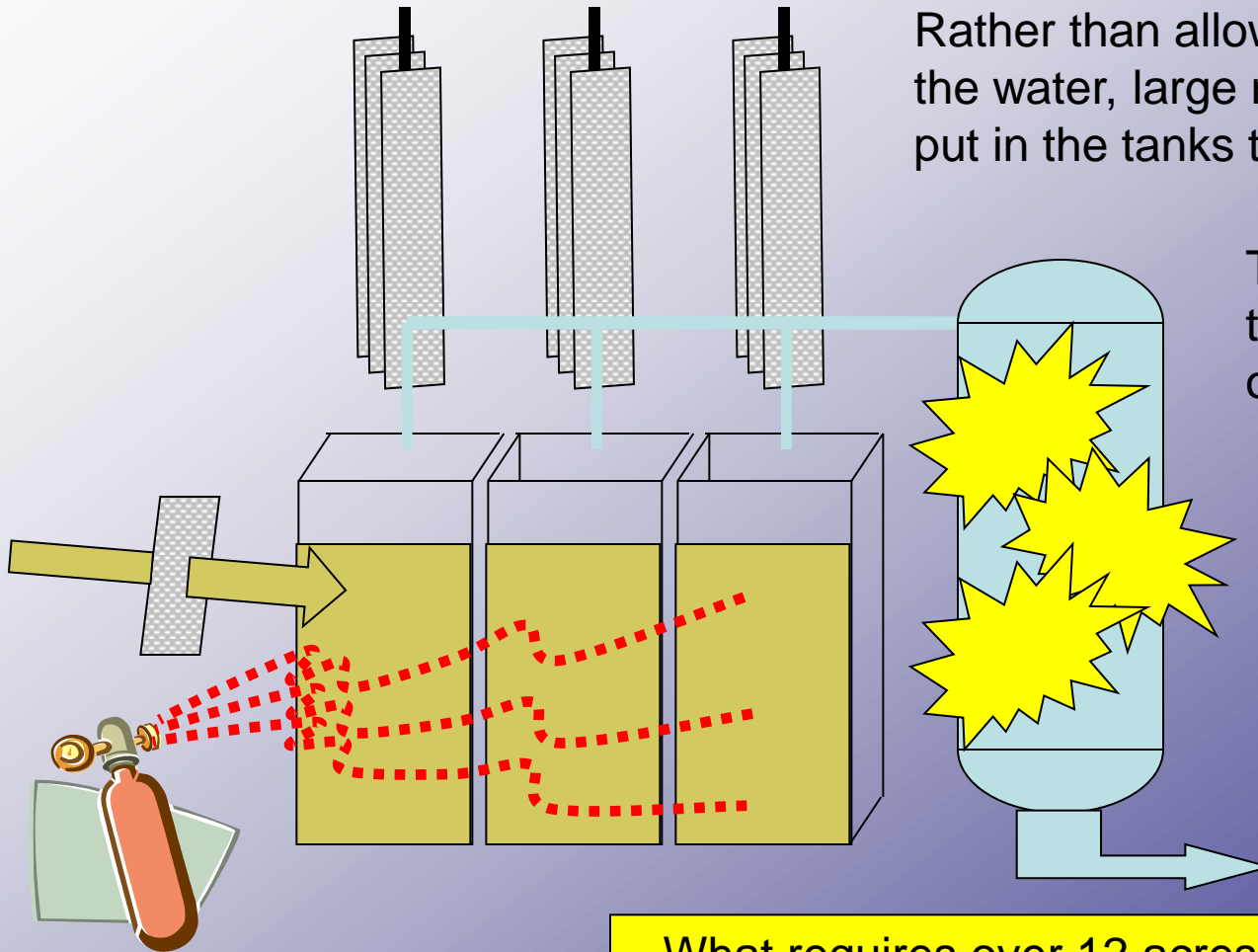
Membrane Bio-Reactor (MBR)

In an MBR water flows into large tanks continuously being pumped with oxygen for the bugs.

Rather than allow the bugs to clean all the water, large membrane filters are put in the tanks to suck the water out.

The water is then exposed to ultra-violet light to clean out any leftover germs.

The result is Type I water.



What requires over 12 acres in a lagoon system can be accomplished in a 30,000 sq. ft. building.

Santaquin . . . Waste Water Options

- Regional Treatment

- Lagoon system with discharge to Utah Lake until Regional plant is operational.
- Lagoon/Payson treatment until Regional plant is operational.

Advantages	Disadvantages
<p data-bbox="92 654 614 835">Frees up lagoons for Business Park when facility is built</p> <p data-bbox="92 856 614 1035">Potential location away from population centers</p>	<p data-bbox="672 654 1638 771">Unknown timing or long-term support for regional system</p> <p data-bbox="672 792 1574 849">Continue pumping raw sewage up hill</p> <p data-bbox="672 871 1555 928">Giving away “water rights” and reuse</p> <p data-bbox="672 949 1748 1120">Temporary fixes until regional plant is operating. Includes Mechanical plant to meet Utah Lake standards.</p> <p data-bbox="672 1149 1487 1206">Less control of operation and fees</p> <p data-bbox="672 1228 1748 1342">High life cycle costs ,(monthly fees to Payson or investment to Utah Lake) plus City costs</p>

Santaquin . . . Waste Water Options

- Mechanical Treatment

- New MBR Facility located north of town while Lagoons continue to treat gravity flow for short period. (Approximately 24,000 residents or 1.8 Mgd).

Push Water	Reuse Water	Longevity	Change Lagoons	Future Control	Growth Impact	Winter Stores	Annual Cost	Balloon	Save \$1.9M
------------	-------------	-----------	----------------	----------------	---------------	---------------	-------------	---------	-------------

Advantage	Disadvantage
Save and use our water rights Grant support for reuse (\$1.0M) Already have land and Design Odor control Small footprint (3 acres) Type I Water Pumping Utilizes existing investment Gravity flow system	Initial capital costs Higher operation and maintenance costs compared to other options Reliance on equipment supplier

Santaquin . . . Waste Water Options

- Mechanical Treatment

- New MBR Facility located at current lagoon site west of town to treat all current flows.

Push Water	Reuse Water	Longevity	Change Lagoons	Future Control	Growth Impact	Winter Stores	Annual Cost	Balloon	Save \$1.9M
------------	-------------	-----------	----------------	----------------	---------------	---------------	-------------	---------	-------------

Advantage	Disadvantage
<p>Save and use our water rights</p> <p>Grant support for reuse (\$1.0M)</p> <p>Already have land and Design</p> <p>Odor control</p> <p>Small footprint (3 acres)</p> <p>Utilizes existing investment</p> <p>Additional Winter Storage exists</p>	<p>Pumping Heavy Liquids</p> <p>Initial capital costs</p> <p>Higher operation and maintenance costs compared to other options</p> <p>Reliance on equipment supplier</p>

Treatment Facilities

Proposed Santaquin Water Reclamation Facility

Membrane Bio-Reactor (MBR)

The entire treatment process is inside buildings with air scrubbers to reduce odor.

Water wise demonstration and reuse garden

Bug tanks and Filters

Discharge to City Irrigation System

Bug Disposal



Administrative Building and training center



Water Screen

Santaquin . . . Choice for the Future

Stay with Lagoon Options

Push Water	Reuse Water	Longevity	Change Lagoons	Future Control	Growth Impact	Winter Stores	Annual Cost	Balloon	Save \$1.9M
------------	-------------	-----------	----------------	----------------	---------------	---------------	-------------	---------	-------------

Push Water	Reuse Water	Longevity	Change Lagoons	Future Control	Growth Impact	Winter Stores	Annual Cost	Balloon	Save \$1.9M
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Payson Option

Push Water	Reuse Water	Longevity	Change Lagoons	Future Control	Growth Impact	Winter Stores	Annual Cost	Balloon	Save \$1.9M
------------	-------------	-----------	----------------	----------------	---------------	---------------	-------------	---------	-------------

MBR Options

Push Water	Reuse Water	Longevity	Change Lagoons	Future Control	Growth Impact	Winter Stores	Annual Cost	Balloon	Save \$1.9M
------------	-------------	-----------	----------------	----------------	---------------	---------------	-------------	---------	-------------

Push Water	Reuse Water	Longevity	Change Lagoons	Future Control	Growth Impact	Winter Stores	Annual Cost	Balloon	Save \$1.9M
------------	-------------	-----------	----------------	----------------	---------------	---------------	-------------	---------	-------------

- 2009: City Council adopted resolution selecting the Option for a new mechanical Membrane Bio Reactor (MBR) treatment plant to be built north of the City.

Santaquin . . . Choice for the Future

- 2011: Several City Residents petitioned the City to place the funding package on an election ballot in an effort to stop the project from being built north of the City.
- 2011: The City Council agreed to put the funding package on the ballot this coming November election.



Two measures on the upcoming November 2011 ballot.

**Approval of a bond for \$9.0 million, and
Approval of a bond for \$0.9 million**

Questions

If you would like more detailed information about the City's treatment process or the proposed water reclamation facility feel free to check out

sewer.santaquin.org

or you can visit the City offices or call (801)754-3211



Rendering of Proposed Santaquin Water Reclamation Facility