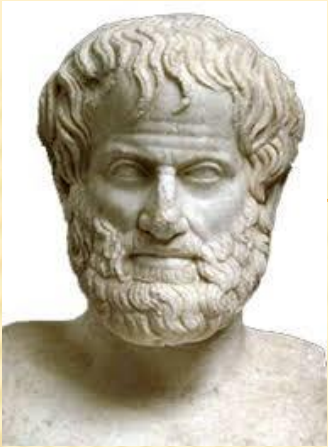


2015 INFRASTRUCTURE TRACKER ANNUAL UPDATE





Aristotle -

"We are what we repeatedly do. Excellence then is not an act but a habit."

Yoda -

"Do or do not. There is no try."



Doty – *"Any replacement is a good replacement."*

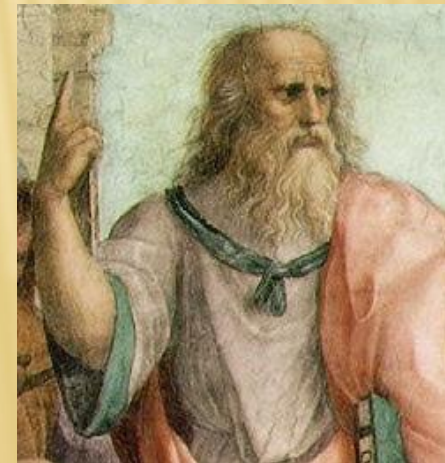


Confucius -

"Life is really simple, but we insist on making it complicated."

Plato -

"Wise men speak because they have something to say; Fools because they have to say something."





BELT LINE REPLACEMENT

- Issues with Belt Lines
- Belt Line Maps
- Pipe Remaining
- Belt Line 2015
 - Schedule
 - Progress Update
- Public Relations Efforts
- Work Prioritization

ISSUES WITH BELT LINES

- ✘ Belt Lines are not Feeder Lines
- ✘ Unlike a Feeder Line, a Belt Line may have many services tied directly to it (i.e. homes)
- ✘ Feeder Lines may be replaced without directly affecting each individual customer
- ✘ Belt Lines are generally located in highly populated areas
- ✘ Many Belt Lines run through very congested streets






ISSUES OF BELT LINES

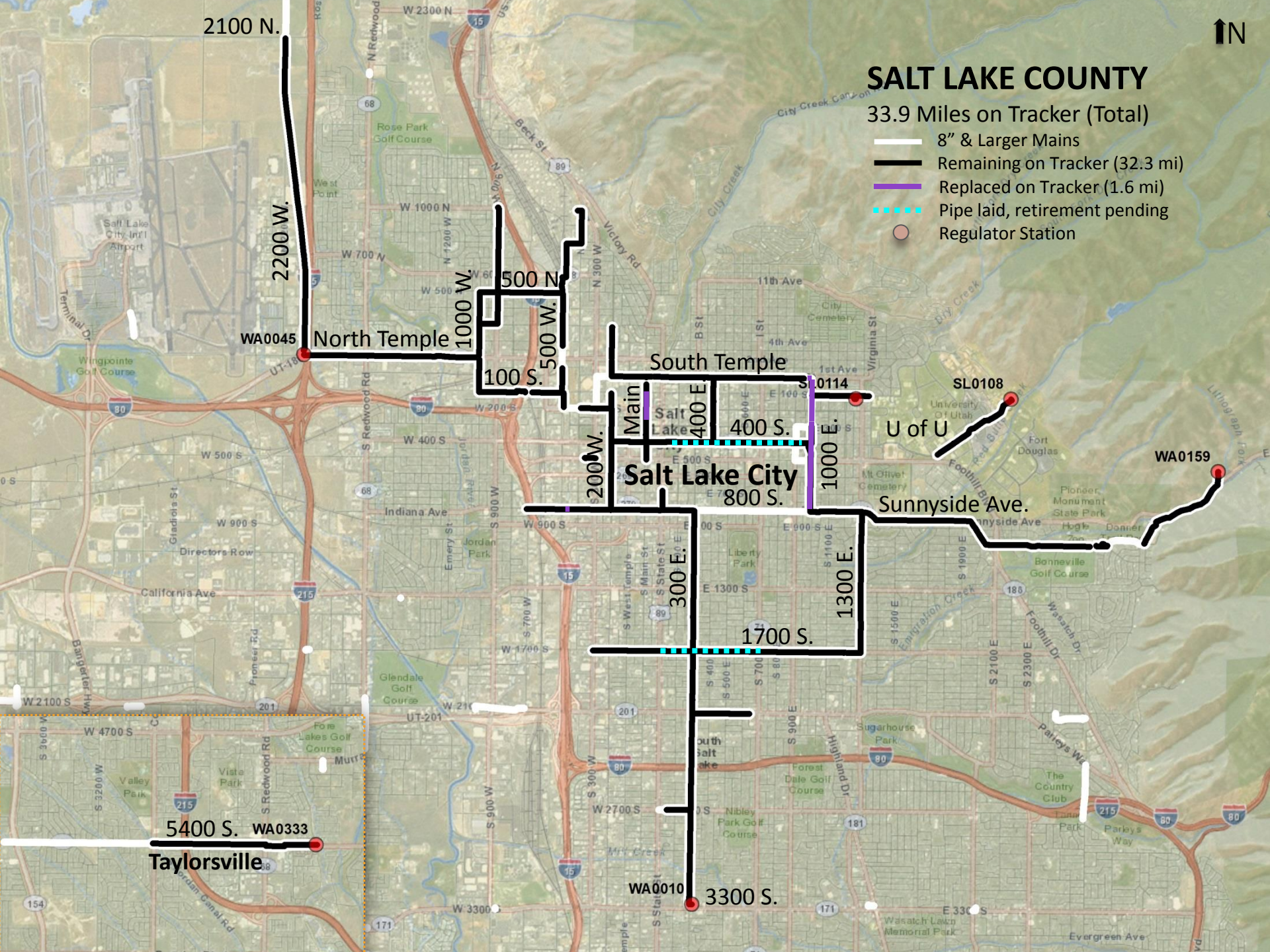




SALT LAKE COUNTY

33.9 Miles on Tracker (Total)

-  8" & Larger Mains
-  Remaining on Tracker (32.3 mi)
-  Replaced on Tracker (1.6 mi)
-  Pipe laid, retirement pending
-  Regulator Station



2100 N.

2200 W.

WA0045

North Temple

1000 W.

500 N.

500 W.

100 S.

South Temple

200 W.

Main

Salt Lake

400 E.

400 S.

1000 E.

SL0114

U of U

SL0108

Salt Lake City

800 S.

Sunnyside Ave.

WA0159

300 E.

1700 S.

1300 E.

5400 S. WA0333

Taylorsville





WA0010

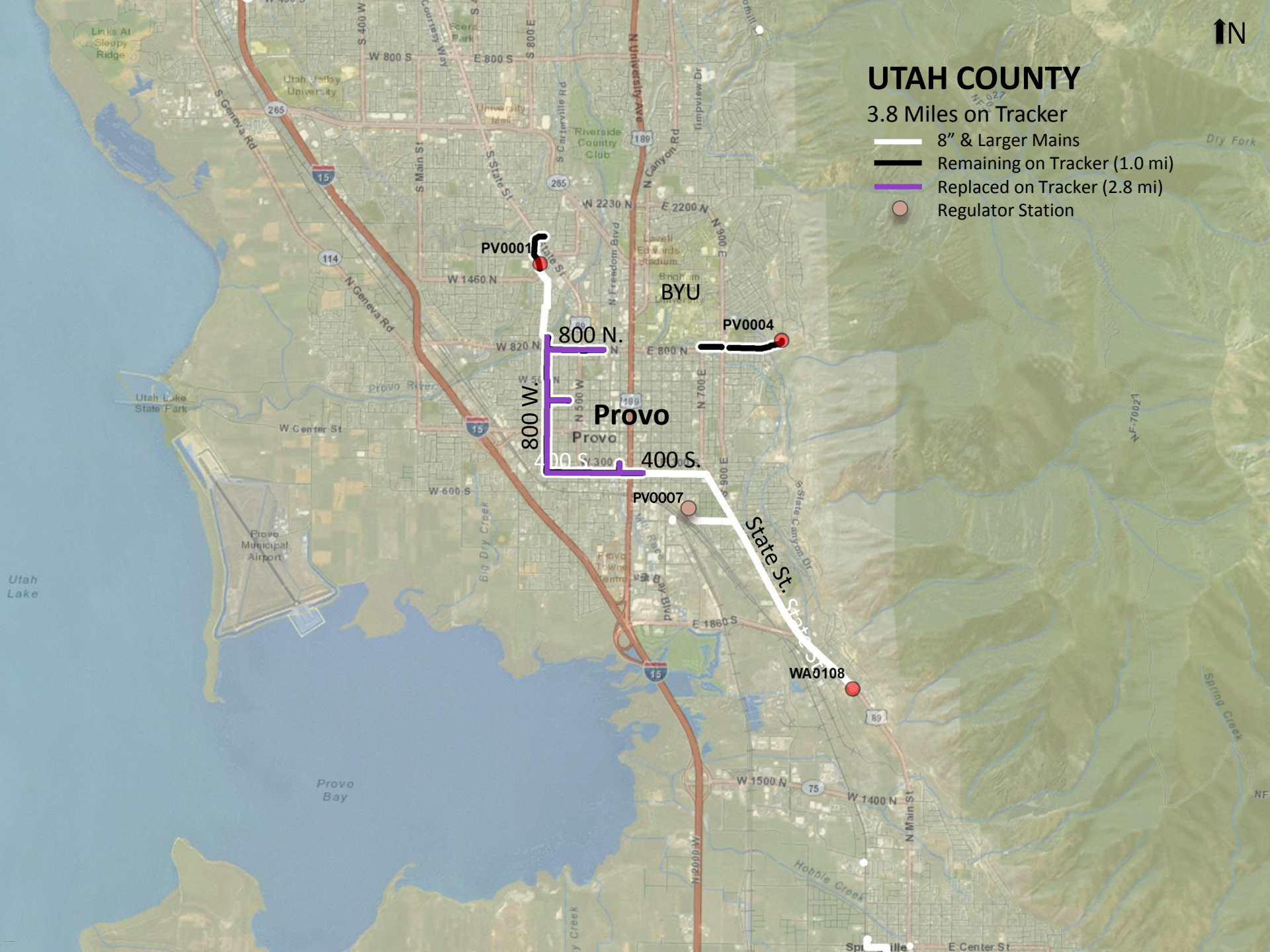
3300 S.



UTAH COUNTY

3.8 Miles on Tracker




-  8" & Larger Mains
-  Remaining on Tracker (1.0 mi)
-  Replaced on Tracker (2.8 mi)
-  Regulator Station

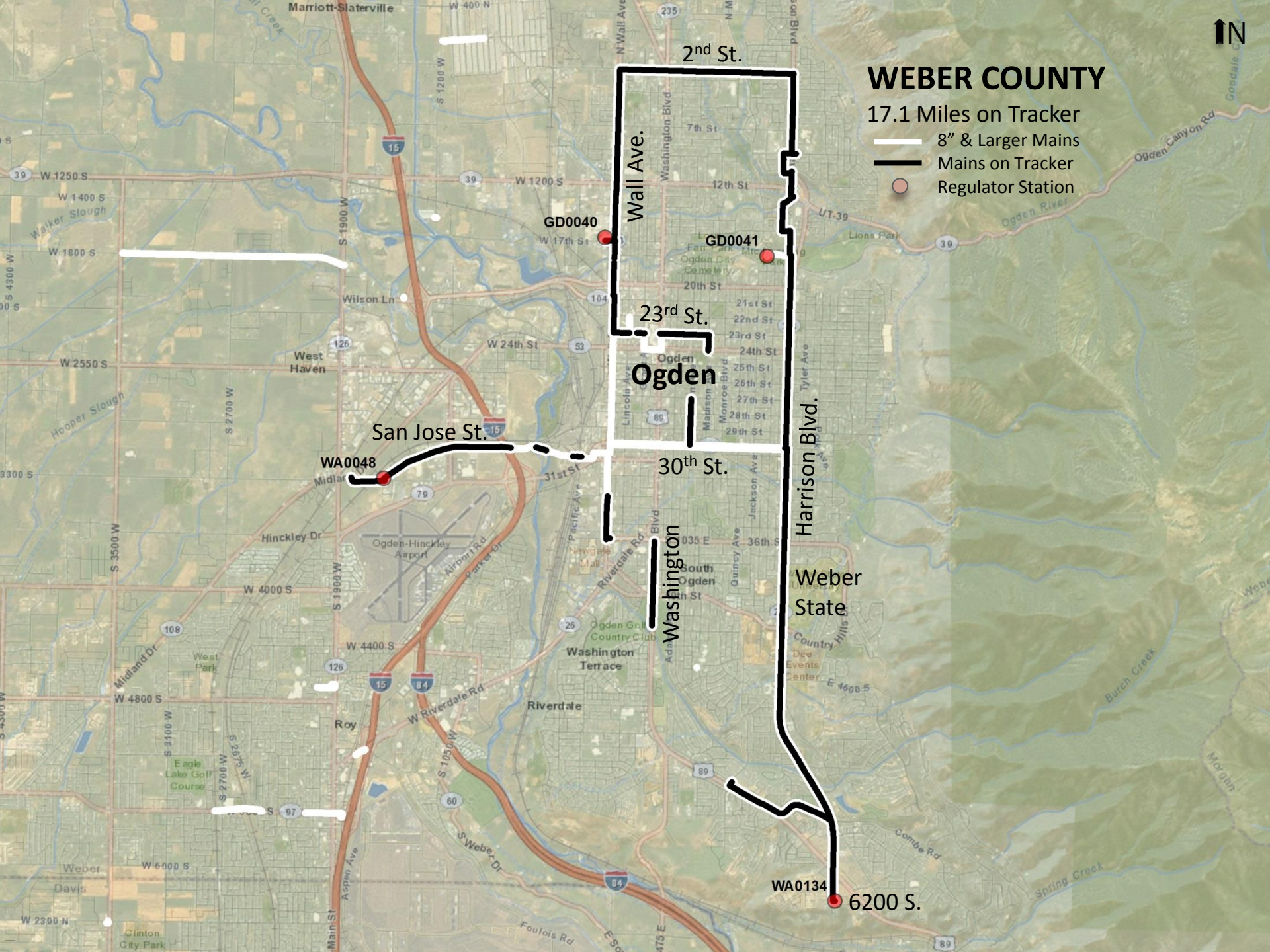




WEBER COUNTY

17.1 Miles on Tracker

-  8" & Larger Mains
-  Mains on Tracker
-  Regulator Station



Wall Ave.
23rd St.
Ogden
Washington
30th St.

Harrison Blvd.

Weber State

6200 S.

San Jose St.

GD0040

GD0041

WA0048

WA0134



DAVIS COUNTY

15.3 Miles on Tracker

- 8" & Larger Mains
- Remaining on Tracker (14.2 mi)
- Replaced on Tracker (1.0 mi)
- Regulator Station

Clearfield

Freeport Cntr

Layton

Farmington

Bountiful

SY0001

CL0007

LY0001

KY0001

WA0402

WA0215

WA0784

BF0005

WA0385

Bluff Rd.

Gentile St.

Shepard Ln.

Shepard Ln.

Pages Ln.

1100 N.

NSL



BELT LINE PIPE REMAINING

Salt Lake County		Footage						
Size	Material	1929	1930-39	1940-49	1950-59	1960-69	1970	Total
24"	Steel	0	0	0	0	11,612	0	11,612
20"	Steel	0	0	5,572	0	3,013	0	8,585
16"	Steel	59,126	0	0	0	66	30	59,222
12"	Steel	17,750 ¹	0	0	2,100	2,686	0	22,536
10"	Steel	1,884	3,431	7,991	22,552 ¹	743	24	36,625
8"	Steel	2,411	0	9	14,453 ¹	15,057	0	31,930

Salt Lake County Footage 170,510
Salt Lake County Miles 32.3

Utah County		Footage						
Size	Material	1929	1930-39	1940-49	1950-59	1960-69	1970	Total
12"	Steel	0	0	154	0	0	0	154
10"	Steel	0	0	0	0	3,235	0	3,235
8"	Steel	0	0	0	86	1,629	0	1,715

Utah County Footage 5,104
Utah County Miles 1.0

Weber County		Footage						
Size	Material	1929	1930-39	1940-49	1950-59	1960-69	1970	Total
16"	Steel	0	0	0	0	17	0	17
14"	Steel	0	0	0	22,227	36	0	22,263
10"	Steel	1,230	5,838	0	17,257	2,439	0	26,764
8"	Steel	2,093	0	4,024	19,620	15,478	0	41,215

Weber County Footage 90,259
Weber County Miles 17.1

Davis County		Footage						
Size	Material	1929	1930-39	1940-49	1950-59	1960-69	1970	Total
12"	Steel	0	0	0	0	2,901	0	2,901
10"	Steel	418	0	0	64,553	0	0	64,971
8"	Steel	0	0	0	0	7,336	0	7,336

Davis County Footage 75,208
Davis County Miles 14.2

	Footage	Miles
Salt Lake County	170,510	32.3
Utah County	5,104	1.0
Weber County	90,259	17.1
Davis County	75,208	14.2
Total	341,081	64.6

1 - 1.8 miles of pipe on 400 South and 1700 S has been laid and will be retired when these projects are completed

BELT LINE 2015

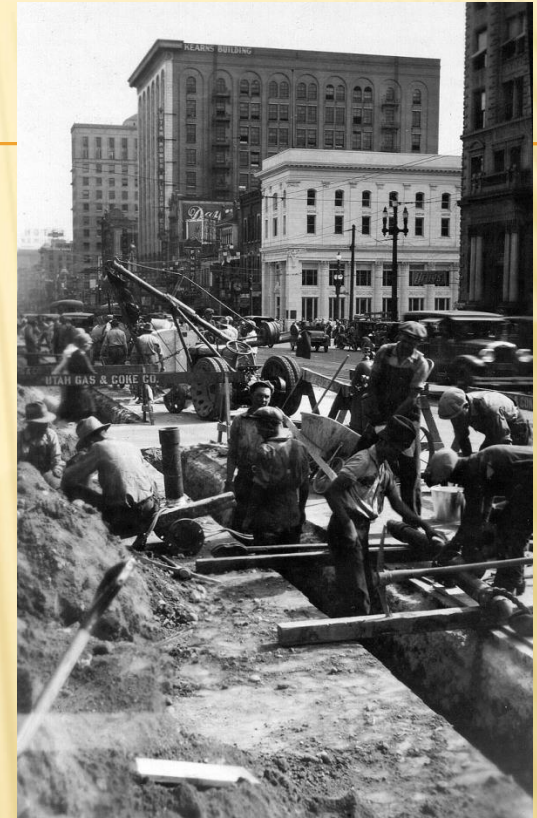
✘ Current 2015 Projects Schedule:

+ Salt Lake County

- ✘ 1700 S in SLC (February – March)¹
- ✘ 400 S Ph1 in SLC (March – June)¹
- ✘ 200 W in SLC (March – September)
- ✘ 400 E in SLC (July – November)
- ✘ Main St Ph2 in SLC (July – November)
- ✘ 400 S Ph2 in SLC (July – November)

+ Weber County

- ✘ Harrison Blvd in Ogden (March-June)
- ✘ Harrison Blvd in South Ogden (April – August)

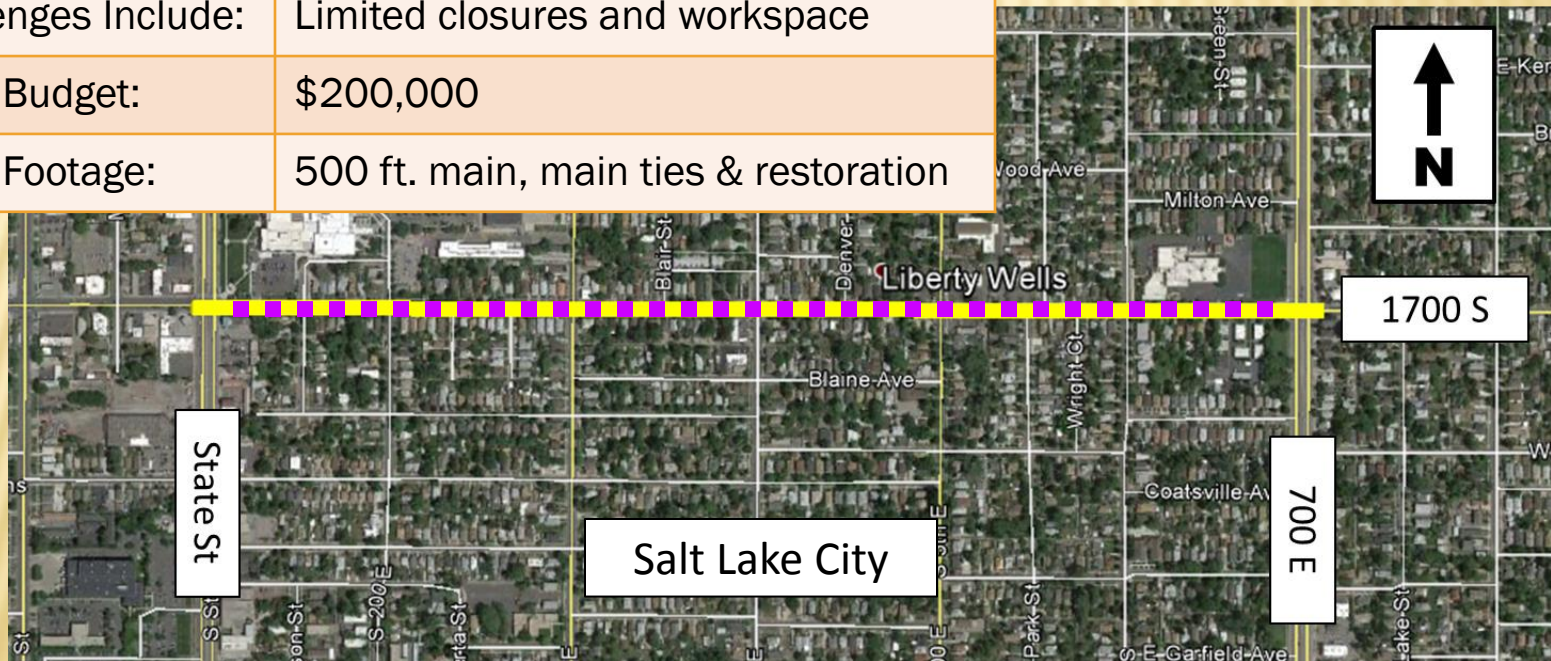


1. Projects started in 2014

BELT LINE WORK 2015

Belt Line:	1700 S between State St & 700 E in Salt Lake City, Salt Lake Co.
Schedule change:	None
Design:	Complete
Construction:	Nov.-Dec. 2014; Feb.-Mar. 2015
Challenges Include:	Limited closures and workspace
2015 Budget:	\$200,000
2015 Footage:	500 ft. main, main ties & restoration

■ ■ ■ Pipe laid, retirement pending
— Project scope



BELT LINE WORK 2015

Belt Line:	400 S between 50 E & 1000 E in Salt Lake City, Salt Lake Co.
Schedule change:	None
Design:	Complete
Construction:	Sept.-Nov. 2014; Mar.-June 2015
Challenges Include:	Limited lane closures and working hour restrictions
2015 Budget:	\$375,000
2015 Footage:	1,500 ft.

■ ■ ■ Pipe laid, retirement pending
— Project scope



BELT LINE WORK 2015

Belt Line:	200 W between 100 S & 800 S, and 200 S between 200 W and 400 W in Salt Lake City, Salt Lake Co.
Schedule change:	None
Design:	Complete
Construction:	February-September 2015
Challenges Include:	Limited workspace, boring major roads
Budget:	\$4,131,000
Footage:	4,600 ft.









BELT LINE WORK 2015

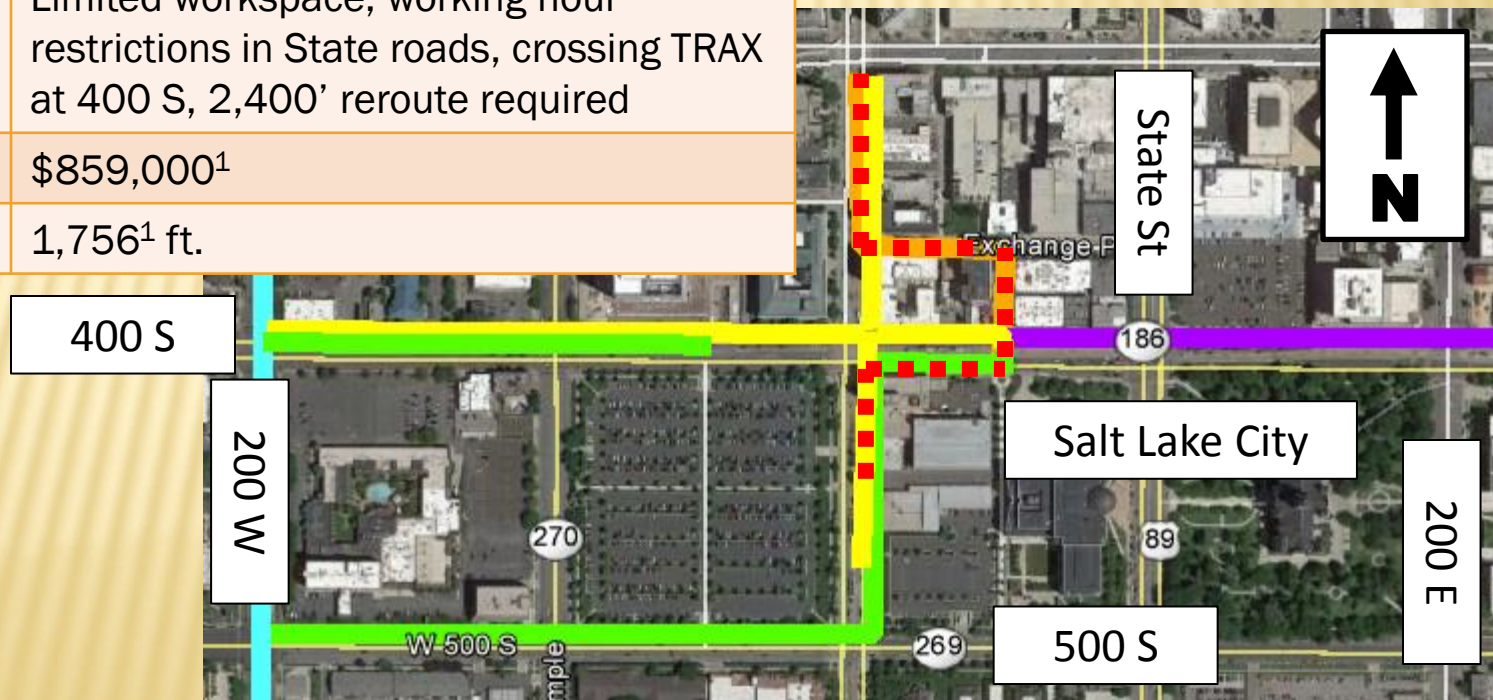
Belt Line:	400 E between So. Temple and 400 S in Salt Lake City, Salt Lake Co.
Schedule change:	None
Design:	Complete
Construction:	July-November 2015
Challenges Include:	No major challenges anticipated
Budget:	\$705,000
Footage:	3,000 ft.



BELT LINE WORK 2015

Belt Line:	Main St from So. Temple-100 S & 300 S-600 S; 400 S from 50 E to 200 W in Salt Lake City, Salt Lake Co.
Schedule change:	None
Design:	In progress
Construction:	July-November 2015
Challenges Include:	Limited workspace, working hour restrictions in State roads, crossing TRAX at 400 S, 2,400' reroute required
2015 Budget:	\$859,000 ¹
2015 Footage:	1,756 ¹ ft.

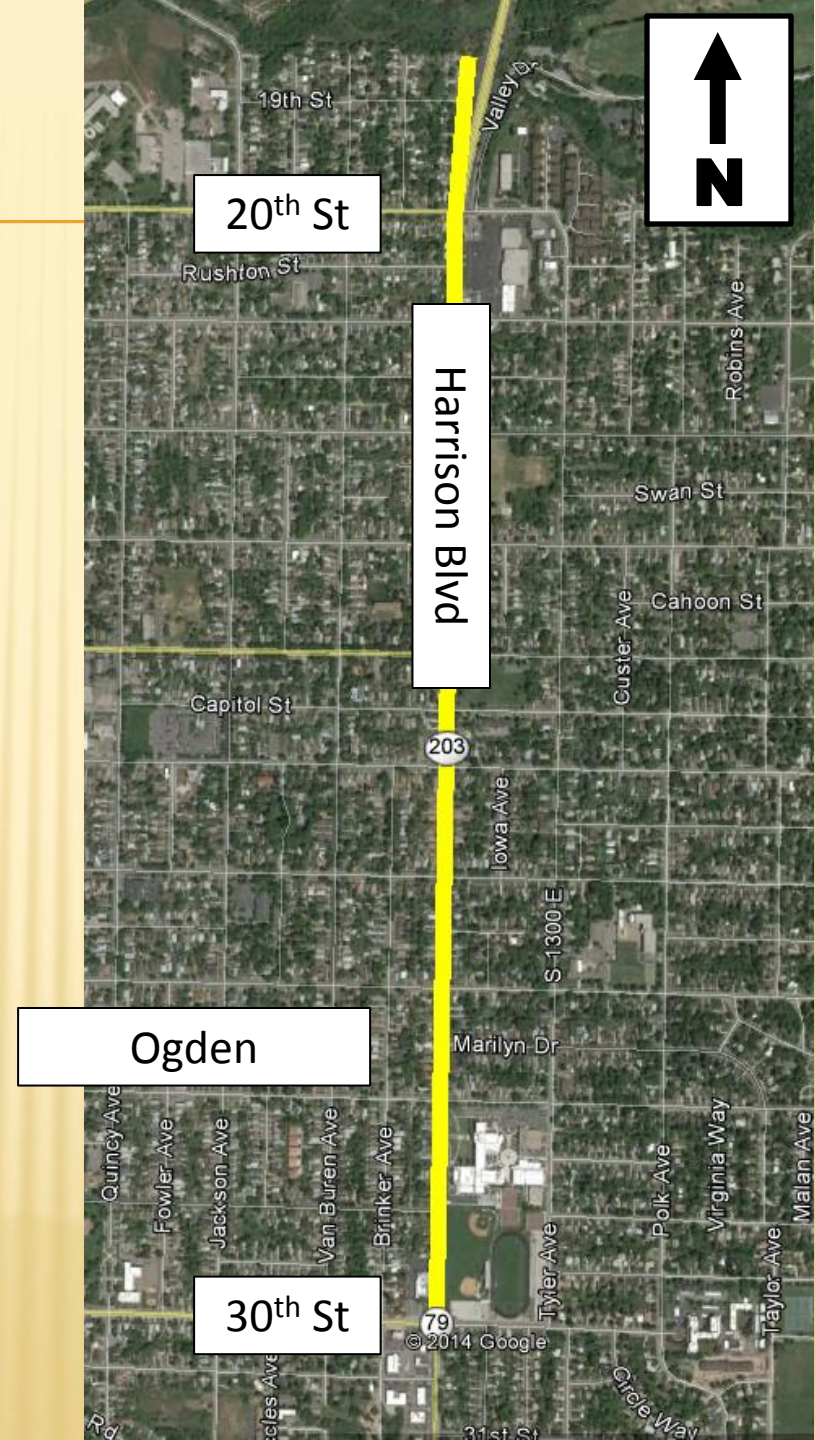
-  Existing Belt Line
-  Main St Ph2
-  400 S Ph2
-  400 S Ph1
-  200 W
-  2015 Scope



1. Project scope for 2015 may be adjusted for available time and budget.

BELT LINE WORK 2015

Belt Line:	Harrison Blvd between 19 th St and 30 th Street in Ogden, Weber Co.
Schedule change:	None
Design:	In progress
Construction:	March-June
Challenges Include:	Working hour restrictions, accelerated timeline to meet UDOT schedule
Budget:	\$1,900,000
Footage:	9,100 ft.



BELT LINE WORK 2015

Belt Line:	Harrison Blvd between 5600 S and 6200 S in South Ogden, Weber Co.
Schedule change:	None
Design:	In progress
Construction:	April-August
Challenges Include:	Working hour restrictions, accelerated timeline to meet UDOT schedule
Budget:	\$2,000,000
Footage:	4,200 ft.



PUBLIC RELATIONS EFFORTS

- ✘ General road and utility work can be seen by the public as an inconvenience
- ✘ To communicate with the public we:
 - + Go door-to-door, speak with the public, and leave door hangers with project and contact information
 - + Set up a website to provide up-to-date project information
 - + Send out notification letters



PUBLIC RELATIONS EFFORTS

- ✘ Be a partner with those around us



Main Street in Salt Lake City



800 W in Provo

WORK PRIORITIZATION

- × What is needed?

 - + A schedule based on criterion found in Settlement Stipulation, Docket 13-057-05, Exhibit 5

- × Risk = Threats x Consequences

 - + Threats

 - × Age of pipe, corrosion, equipment failure, excavation damage, incorrect operation, material, natural forces, outside forces, weld & joint failure, other threats

 - + Consequences

 - × Population density, business districts, critical facilities (hospitals, schools, nursing homes, and churches), main diameters

WORK PRIORITIZATION

- ✘ Other considerations

- + Smaller defined project segments

- ✘ Belt Lines do not have specific line numbers

- ✘ Belt Line master list only defines pipe to be replaced

- ✘ What makes scheduling difficult?

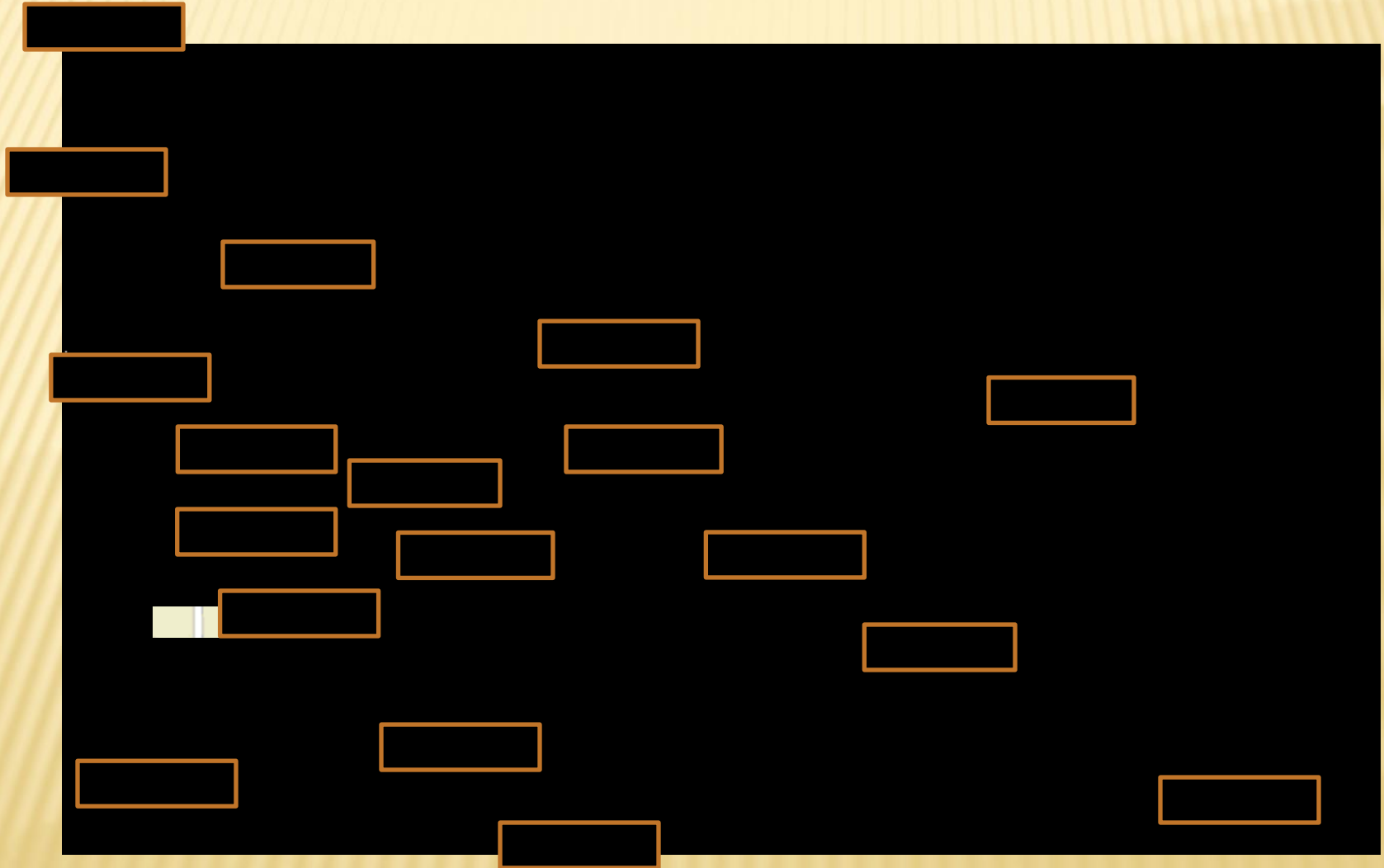
- + All the factors that affect scheduling are dynamic

WORK PRIORITIZATION

✘ Where did we start?

- + The Belt Line master list (the 70 miles in tracker) was broken into 54 project segments
- + The relative risk scores were calculated for each of the 54 project segments
- + The project segments were prioritized by relative risk score

PROJECT SEGMENT MAP FOR DOWNTOWN SLC



PROJECT SEGMENTS

- ✘ Prioritized by relative risk score

2014 Risk Score Priority

Segment Priority:

3, 5, 4, 10, 1, 2, 20, 9, 7, 6, 15, 28, 14, 26, 27, 17,
29, 21, 8, 45, 54, 44, 12, 39, 18, 16, 46, 42, 35, 37,
38, 43, 53, 22, 30, 40, 36, 19, 11, 41, 25, 47, 24, 34,
31, 52, 13, 23, 49, 48, 51, 50, 32, 33.

SCHEDULING BELT LINE REPLACEMENTS



2014 Risk Score Priority

Segment Priority:
3, 5, 4, 10, 1, 2, 20,
 9, 7, 6, 15, 28, 14,
 26, 27, **17,** 29, 21,
 8, 45, 54, 44, 12,
 39, 18, **16,** 46, 42,
 35, **37,** 38, 43, 53,
 22, 30, **40,** 36, 19,
 11, 41, 25, 47, 24,
 34, 31, 52, 13, 23,
 49, 48, 51, 50, 32,
 33.

Remedial Actions

Permitting Requirements

Environmental Requirements

Local Government Requirements

Schedule

Efficiency Considerations

2015 Road Projects

- Segment **16, 17**
- Segment **37, 40**

2016 FL Replacement

- Segments 49, 50, 51, 36

Completed Segments
Segments started in 2014
2015 Segments

2015 Schedule

Segments:
2 & 5 (400 S, SLC)
4 (Main St, SLC)
16 & 17 (1700 S, SLC)
3 (400 E, SLC)
10 (200 W, SLC)
37 (Harrison, So. Ogden)
40 (Harrison, Ogden)

Other project-specific considerations

Segment **40**, relocations required to accommodate UDOT and Ogden City storm drain project associated with road project

Real Property & ROW Acquisitions



SCHEDULING BELT LINE REPLACEMENTS

- ✘ Moving forward in 2015
 - + Finalize design and construction work on 2015 projects
 - + Meet with Cities and UDOT to determine upcoming road projects for efficiency considerations
 - + Continue gathering dynamic information on scheduling factors
 - + Finalize identification of 2016 work
 - + Continue preliminary engineering on 2016 projects

BELT LINE VARIANCES

Project	Budget	Actual	Variance	Explanation
Salt Lake County	\$5,570,000	\$6,184,882	(\$614,882)	Began new project on 1700 S and laid 4,400' of pipe
Davis County	\$930,000	\$704,569	\$225,431	Bids came in lower than expected
Utah County	\$3,500,000	\$3,186,120	\$313,880	Bid prices and road restoration costs came in lower than anticipated
Total	\$10,000,000	\$10,075,571	(\$75,571)	



HIGH PRESSURE REPLACEMENT

- HP Replacement Program Evaluation Criteria
 - Risk weighting factors
 - Feeder Line Prioritization
 - Scheduling Feeder Line Replacements
- 2015 Schedule
- Feeder Line Updates
- 2014 Cost Variance
- Looking Forward

HP REPLACEMENT PROGRAM EVALUATION CRITERIA

× Risk = Threat x Consequence

× Threats

- Construction
 - Pre 1955 – High Risk
 - 1955 - 11/1970 — Medium Risk
 - Post 11/1970* – Low Risk
- Manufacturing - Pipe
 - Low Frequency Electric Resistance Weld (LF-ERW) – High Risk
 - Electric Flash Weld (EFW) – High Risk
 - Longitudinal Seam Weld Factor < 1.0 – High Risk
 - Pre 1960 – Medium Risk
 - Double Submerged Arc Weld (DSAW)
 - Submerged Arc Weld (SAW)
 - Post 1960 – Low Risk
- Reconditioned
 - Yes – High
 - No – Low

- Pressure Test Records
 - Not found – High Risk
- Pipe/Equipment Condition
 - SME

× Consequence

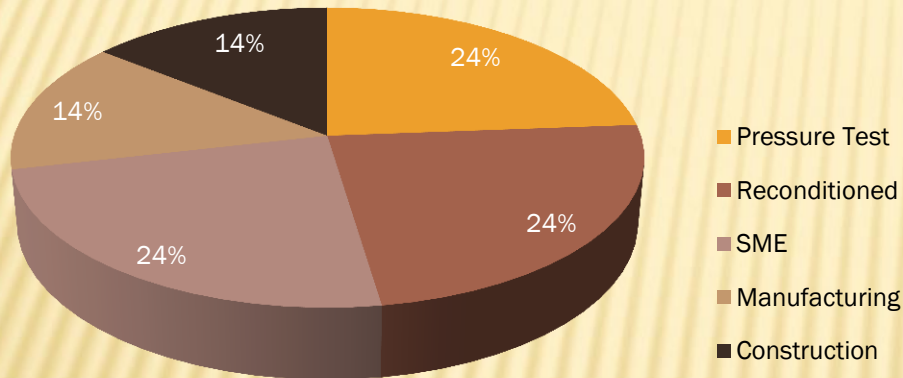
- HCAs
- Census Data

* 49 CFR Part 192 went into effect in 1970

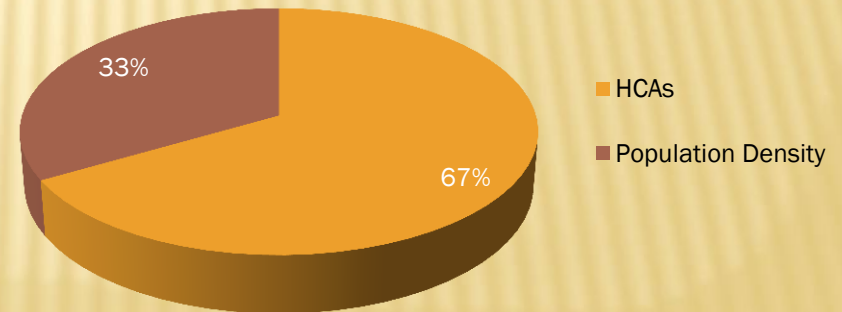
RISK WEIGHTING FACTORS

$$\text{RISK} = \text{Threat} \times \text{Consequence}$$

Threat Weighting



Consequence Weighting



FEEDER LINES

- ✘ Prioritized by HP criteria

HP Criteria



SCHEDULING FEEDER LINE REPLACEMENTS





2015 SCHEDULE

Line	Location
FL6	Salt Lake County
FL24	Utah County
FL34	Salt Lake County (1300 W. 8400 S.)
FL26	Northern Utah County

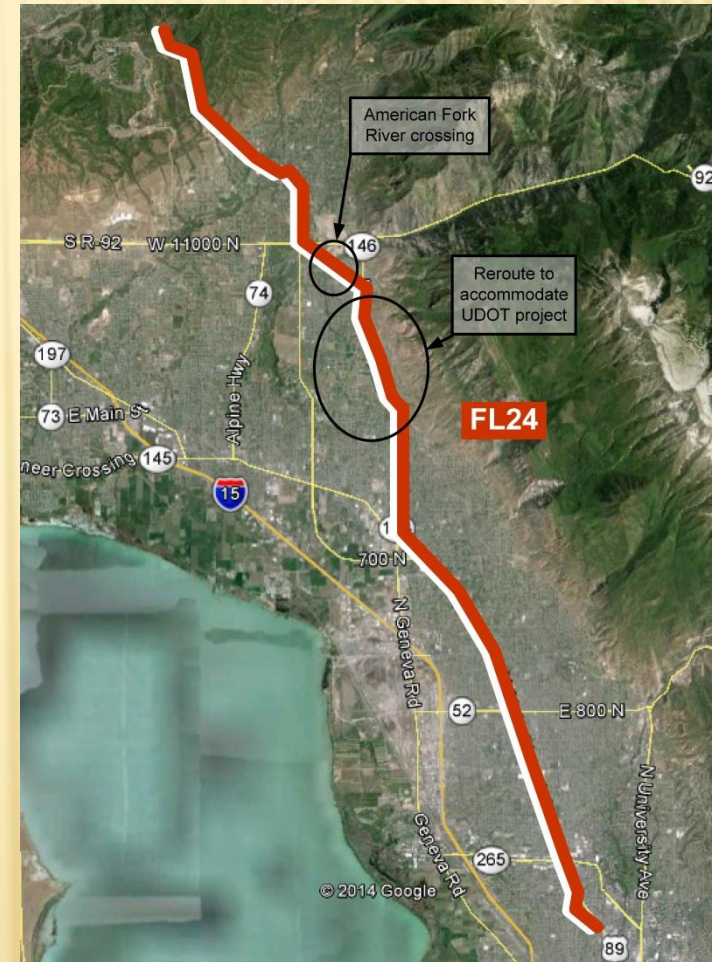
FEEDER LINE UPDATE

Line:	FL6
Schedule change:	continued from 2014
Design:	substantially complete
Challenges Include:	permitting and easement, primarily in Corner Canyon, soil conditions, fire control
2015 Budget	\$13,000,000
2015 Footage:	26,600 ft.



FEEDER LINE UPDATE

Line:	FL24
Schedule change:	Work begun in 2014
Design:	substantially complete
Challenges Include:	negotiations for complicated utility crossings, property rights, UDOT negotiations, fire control
2015 Budget	\$34,500,000
2015 Footage:	47,000 ft.



FEEDER LINE UPDATE

Line:	FL34
Change:	Directional drill failed in 2014, completion planned for 2015
Design:	Complete
Construction:	underway
Challenges include:	City coordination, soil conditions
2015 Budget	\$350,000
2015 Footage:	100 ft.



FEEDER LINE UPDATE

Line:	FL26
Schedule change:	added to 2015 work to accommodate development
Design:	complete
Challenges Include:	resolution of right-of-way
2015 Budget	\$3,800,000
2015 Footage:	3,800 ft.



2014 COST VARIANCE

Project	Budget	Actual	Variance	Explanation
FL6	38,750,000	42,265,333	(\$3,515,333)	1. Extensive directional drilling required by Sandy City 2. Higher-than-expected right-of-way, permitting and traffic control costs
FL18	2,000,000	1,931,415	\$68,585	On budget
FL34	3,000,000	980,283	\$2,019,717	Adverse soil conditions precluded completion of project prior to 2014 heating season—to be completed in 2015
FL36	8,000,000	8,085,559	(\$85,559)	On budget
FL21-50	250,000	489,688	(\$239,688)	The bulk of this project was completed in inclement weather (all the overage was taken in the last year of construction)
FL24	--	3,908,399	(\$3,908,399)	Due to permitting issues in Sandy, work planned for FL6 was shifted to FL24, which had originally been planned for 2015 construction
Pre-eng	3,000,000	157,279	\$2,842,721	Due to scheduling changes, monies were shifted to the above projects.
FL35 (carryover)	0	339,817	(\$339,817)	Some additional costs were incurred on a previous year's Feeder Line tracker project.
Total	55,000,000	58,157,773	(\$3,157,773)	

LOOKING FORWARD

- ✘ PHMSA (Recent Congressional scrutiny)
 - + Pipeline safety and/or Questar may identify other replacement needs
 - ✘ Aldyl-A, rocket tubing, small diameter wrapped steel, etc
- ✘ Criteria for pipe replacement under ongoing evaluation

QUESTIONS?
