



2017 Infrastructure Tracker Annual Update

April 27, 2017

Dominion Energy Utah
Docket No. 19-057-02
DEU Exhibit 1-14 2017 Spring Tech Conf
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Agenda

- PHMSA Mega Rule
- Belt Line Replacement
 - 2017 Projects
 - Scheduling
 - 2016 Cost Variance
- High Pressure Replacement
 - 2017 Projects Update
 - 2016 Cost Variance
- Updated HP Replacement Program Evaluation Criteria
 - Scheduling

Pipeline Safety “Mega Rule” (not final)

- New Administration Impacts
 - Delay of final rule
 - Speculation that non-statutory parts may be removed or reduced in scope (NTSB items)
 - Example: “the proposed rule’s guidance for verifying the maximum allowable operating pressures and materials of pipelines goes beyond what is covered under Congress’ mandate to the agency”
 - No clarifying information to date has been provided by PHMSA

Belt Line Replacement

- Belt Line Maps
- Pipe Retired
- Pipe Remaining
- Work Prioritization
- Belt Line 2017
 - Schedule
 - Progress Update

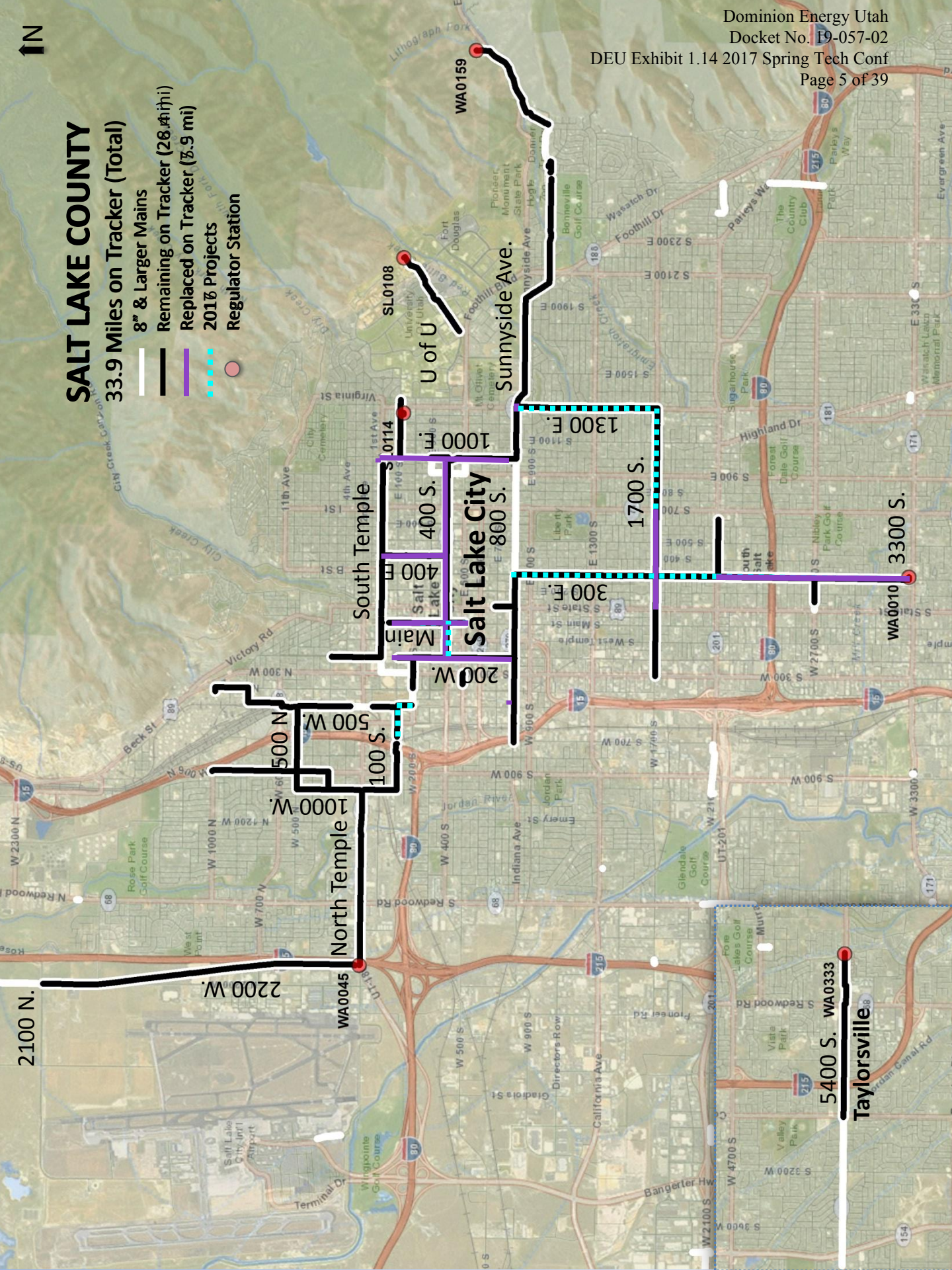




SALT LAKE COUNTY

33.9 Miles on Tracker (Total)

- 8" & Larger Mains
- Remained on Tracker (28.4 mi)
- Replaced on Tracker (3.9 mi)
- 2013 Projects
- Regulator Station





UTAH COUNTY

3.8 Miles on Tracker

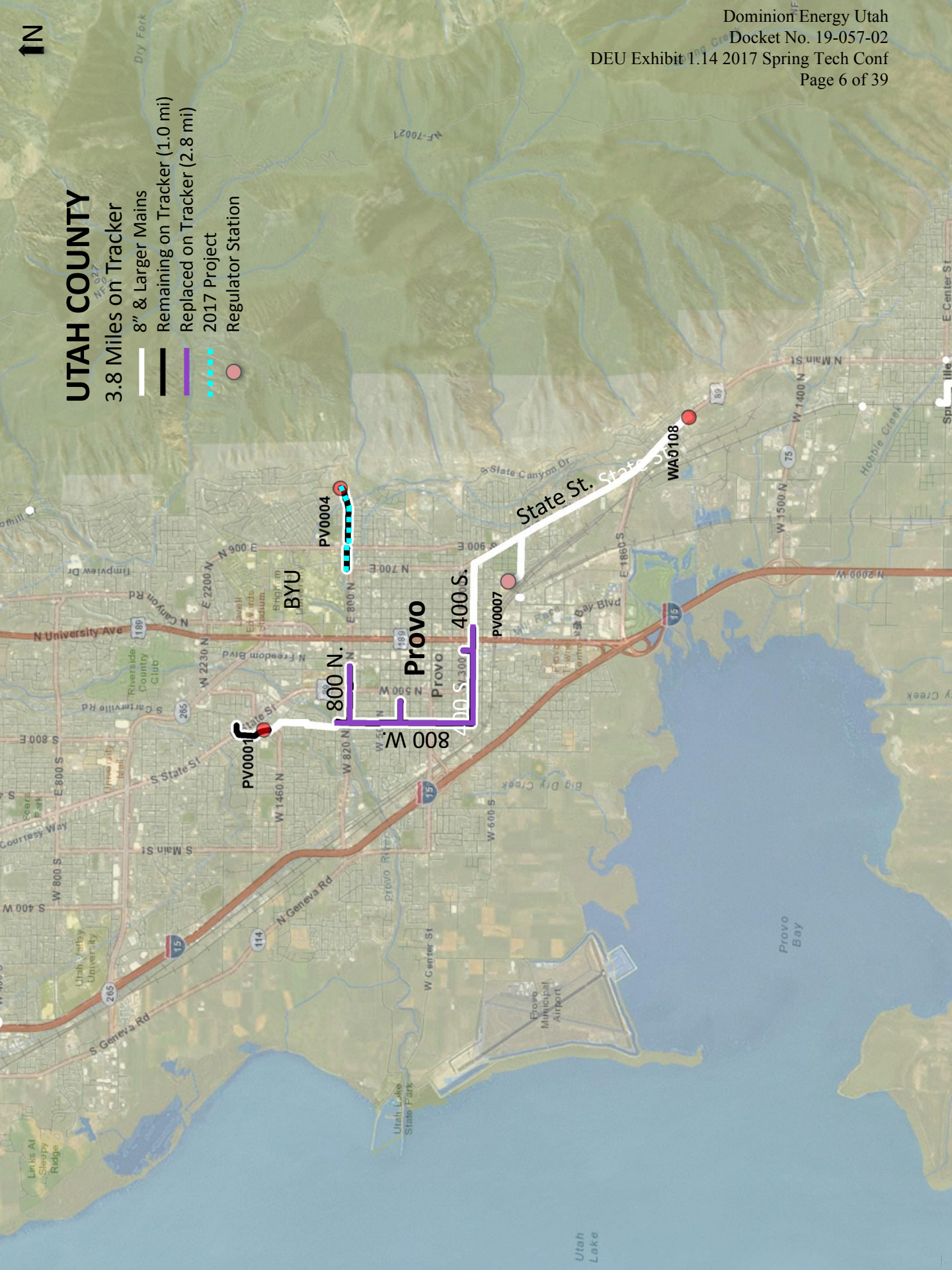
8" & Larger Mains

Remaining on Tracker (1.0 mi)

Replaced on Tracker (2.8 mi)

2017 Project

Regulator Station





WEBER COUNTY

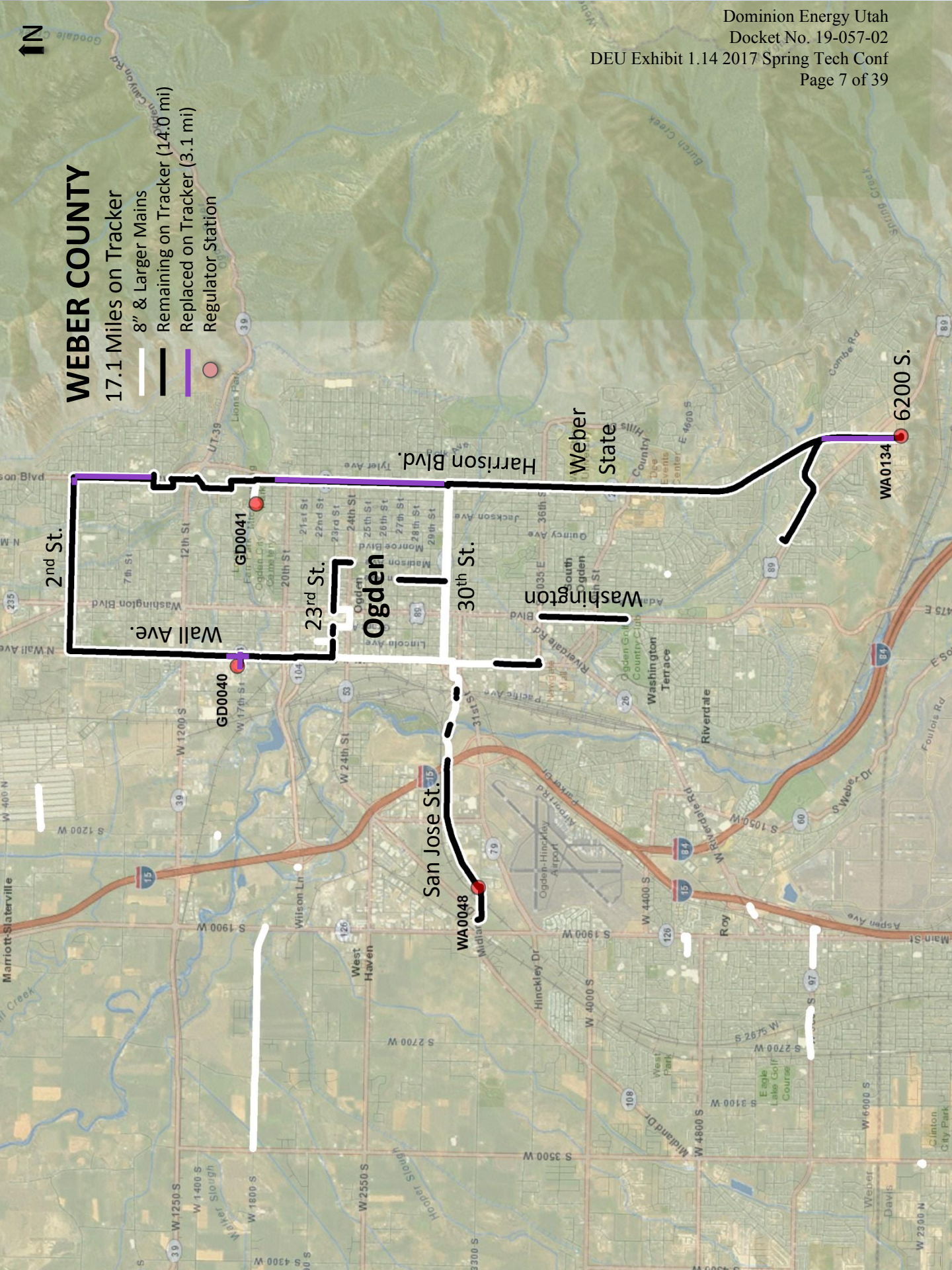
17.1 Miles on Tracker

8" & Larger Mains

Remained on Tracker (14.0 mi)

Replaced on Tracker (3.1 mi)

Regulator Station





DAVIS COUNTY

15.3 Miles on Tracker

- 8" & Larger Mains
- Remainig on Tracker (14.2 mi)
- Replaced on Tracker (1.0 mi)
- 2017 Project
- Regulator Station

Clearfield

Freeport Cntr

Layton

Farmington

Bountiful

SY0001

CL0007

LY0001

KY0001

WA0401

WA0215

WA0784

BF0005

WA0385

NSL

Bluff Rd.

Gentile St.

Shepard Ln.

Pages Ln.

1100 N.

Belt Line 2016 Cost Variances

Project	Budget	Actual	Variance	Explanation
Salt Lake County	8,215,000	8,458,628	(243,628)	Re-route of 16" pipe on 300 East resulted in an additional approximate 1,600' of pipe installation.
Davis County	75,000	241,209	\$(166,209)	Installation costs higher than anticipated
Total	\$8,290,000	\$8,699,837	\$(373,422)	

Belt Line Pipe

Original Tracker Pipe	
Footage	Miles
Salt Lake County	33.9
Utah County	3.8
Weber County	17.1
Davis County	15.3
Total	70.1

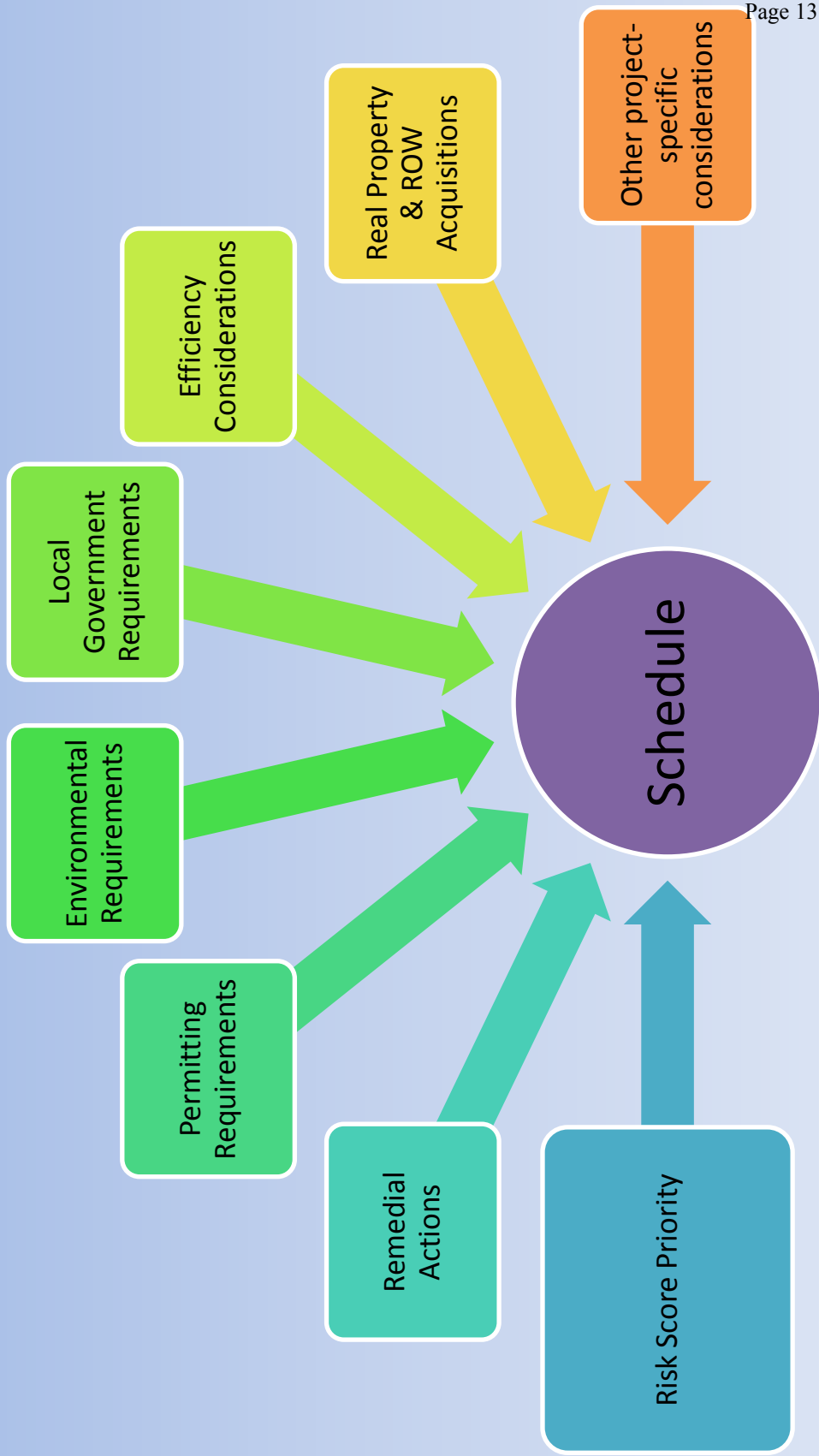
Belt Line Pipe

Original Tracker Pipe	
Footage	Miles
Salt Lake County	33.9
Utah County	3.8
Weber County	17.1
Davis County	15.3
Total	70.1
Retired Tracker Pipe	
Footage	Miles
Salt Lake County	7.9
Utah County	2.9
Weber County	3.1
Davis County	1.0
Total	14.8

Belt Line Pipe

Original Tracker Pipe	
Footage	Miles
Salt Lake County	33.9
Utah County	3.8
Weber County	17.1
Davis County	15.3
Total	70.1
Retired Tracker Pipe	
Footage	Miles
Salt Lake County	7.9
Utah County	2.9
Weber County	3.1
Davis County	1.0
Total	14.8
Remaining Tracker Pipe	
Footage	Miles
Salt Lake County	26.0
Utah County	1.0
Weber County	14.0
Davis County	14.2
Total	55.3

Scheduling Belt Line Replacements



Project Segments

March 2016 Risk Score Priority

Segment Priority:

Partially Complete Segments

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

Completed segments:

1, 2, 3, 5, 35, 52, 54

March 2017 Risk Score Priority

Segment Priority:

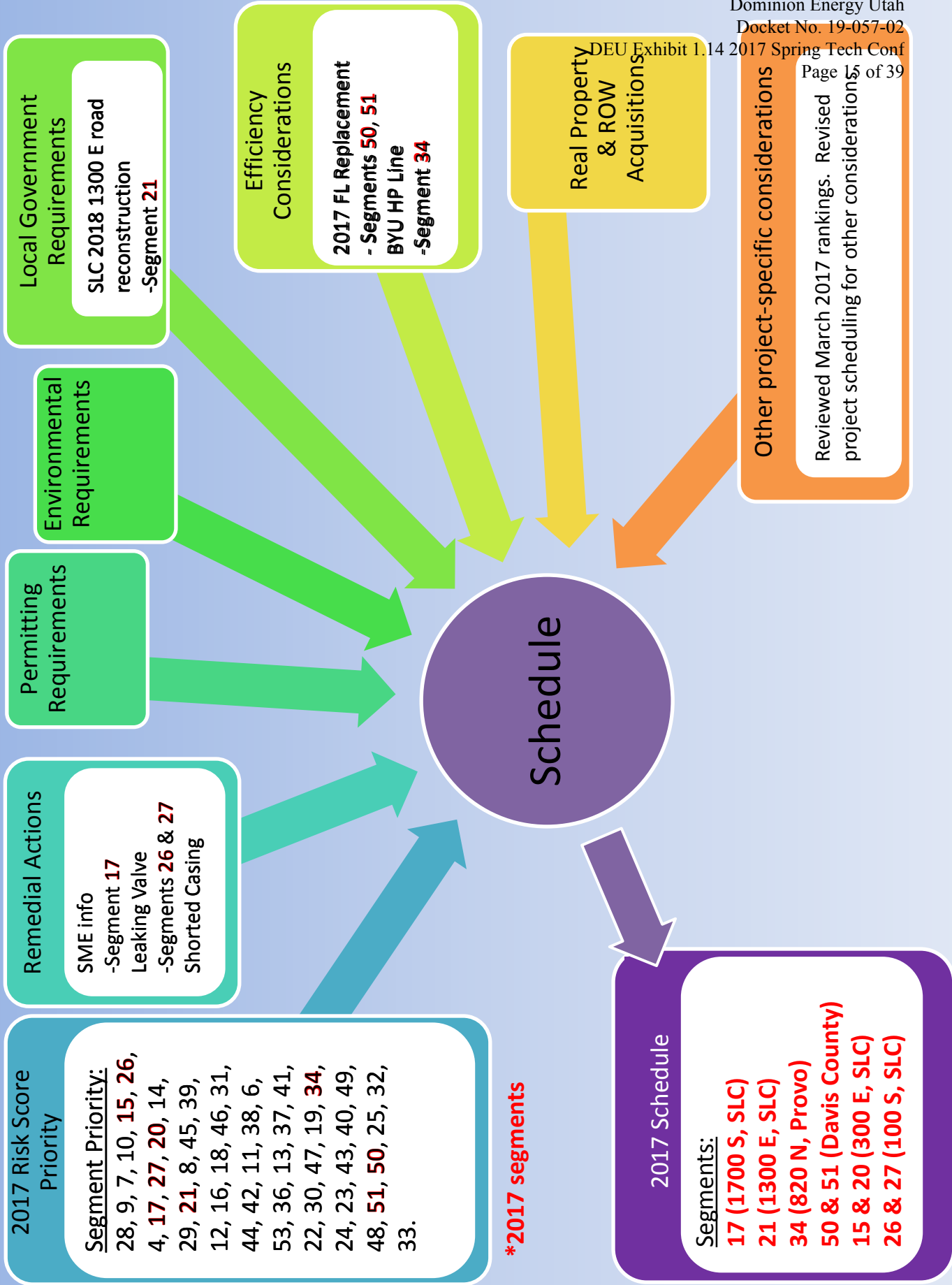
Partially Complete Segments

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

Completed segments:

1, 2, 3, 5, 35, 52, 54

- Prioritized by relative risk score



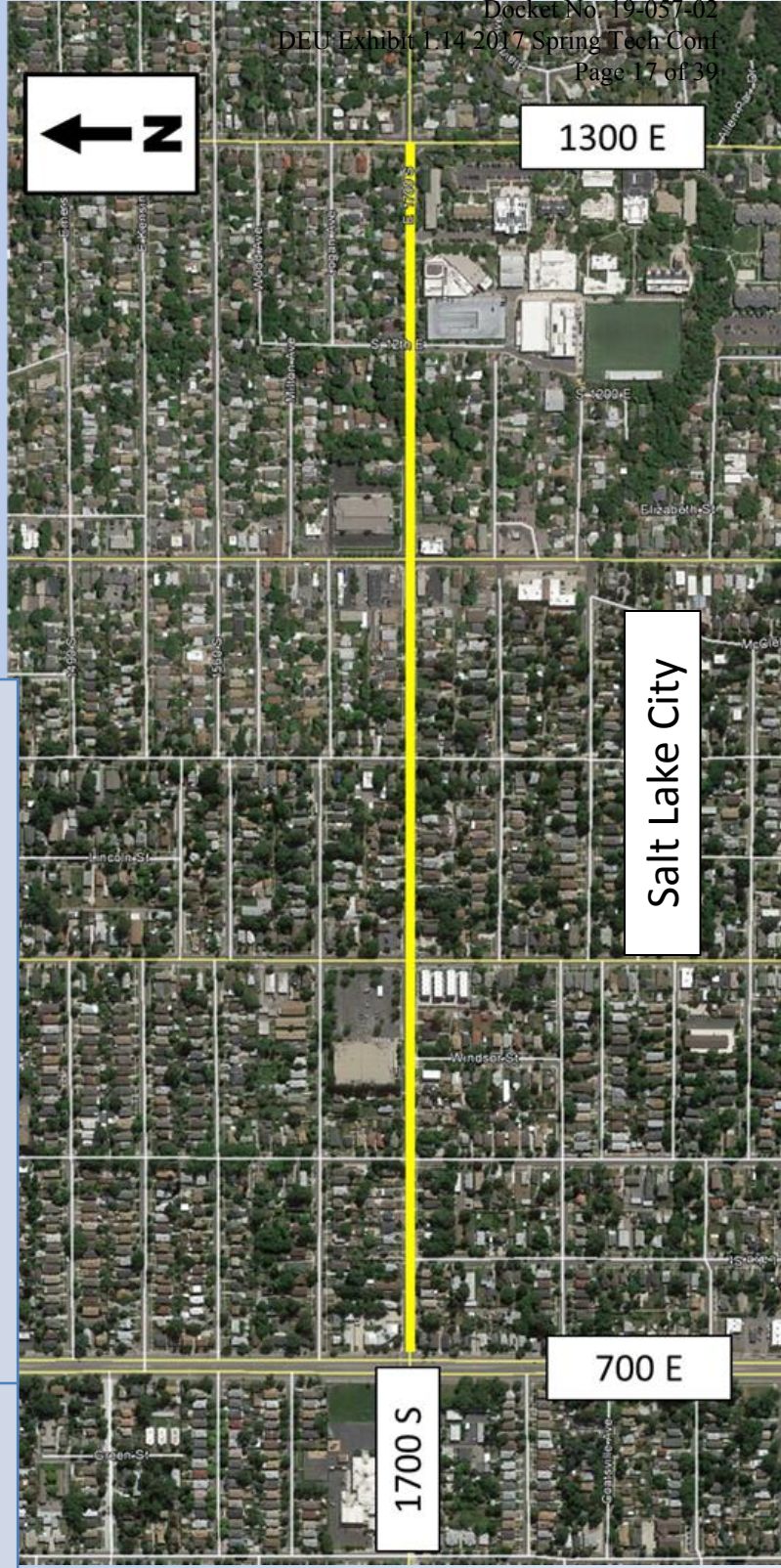
Belt Line 2017

- Current 2017 Projects Schedule:
 - Salt Lake County (\$6.97M)
 - 1700 S in SLC (February - May)
 - 1300 E in SLC (February – July)
 - 300 E in SLC (Summer)
 - 100 S in SLC (Summer)
 - Utah County (\$1.10M)
 - 820 N in Provo (Spring-Fall)
 - Davis County (\$9.02M)
 - Phase I with FL replacement (January – December)



Belt Line Work 2017

Belt Line:	1700 S between 700 E & 1300 E in Salt Lake City, Salt Lake Co.
Construction:	February – May 2017
Challenges Include:	Limited closures and workspace
Footage:	4,600 ft.



Belt Line Work 2017

Belt Line:	1300 E between 800 S and 1700 S in Salt Lake City, Salt Lake Co.
Construction:	February – July 2017
Challenges Include:	Limited closures and workspace. Heavy traffic.
Footage:	7,000 ft.



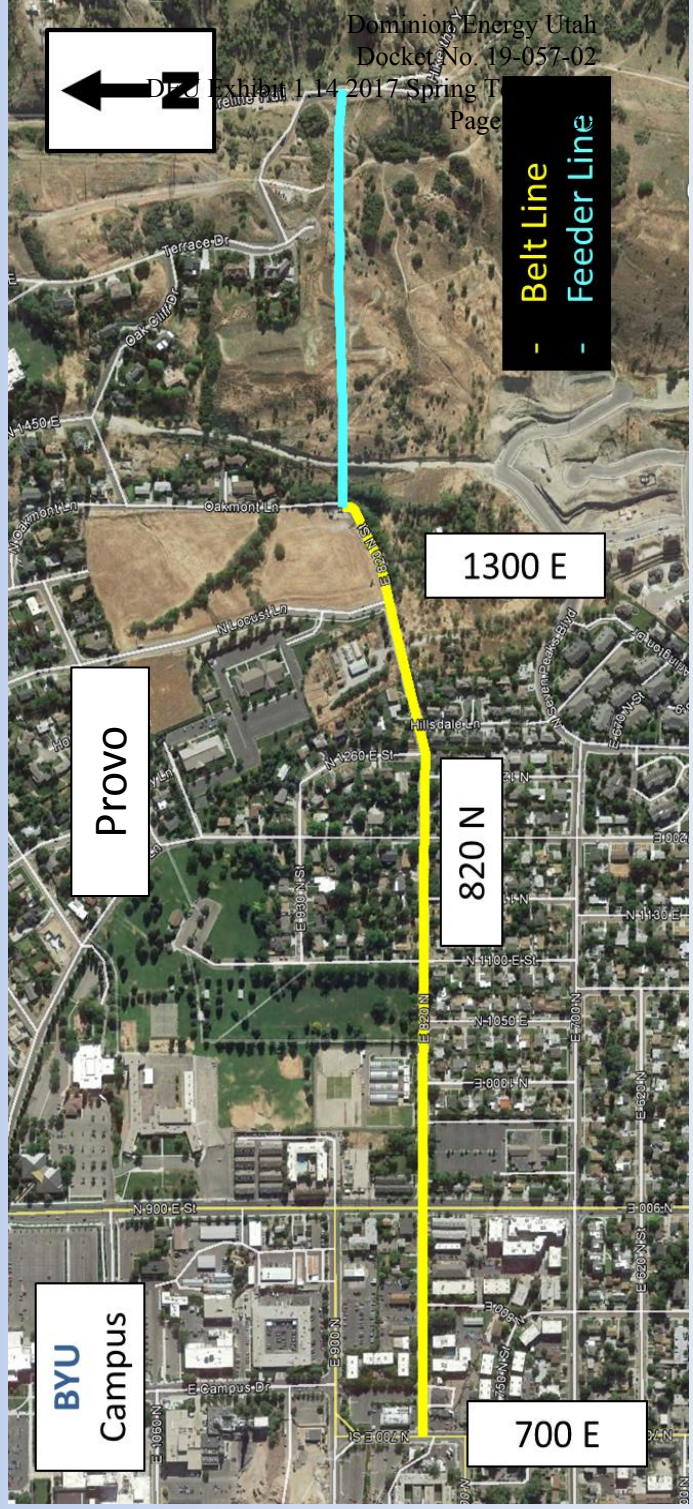
Belt Line Work 2017

Belt Line:	100 S between 700 W and 500 W and 500 W between 100 S and 200 S in Salt Lake City, Salt Lake Co.
Construction:	Summer 2017
Challenges Include:	Running line, limited workspace, pedestrian traffic
Footage:	2,200 ft.



Belt Line Work 2017

Belt Line:	820 N from 700 E to Oakmont Lane in Provo, Utah Co.
Construction:	June-November
Challenges Include:	Limited workspace, running line, vehicular and pedestrian traffic
Footage:	4,000 ft.



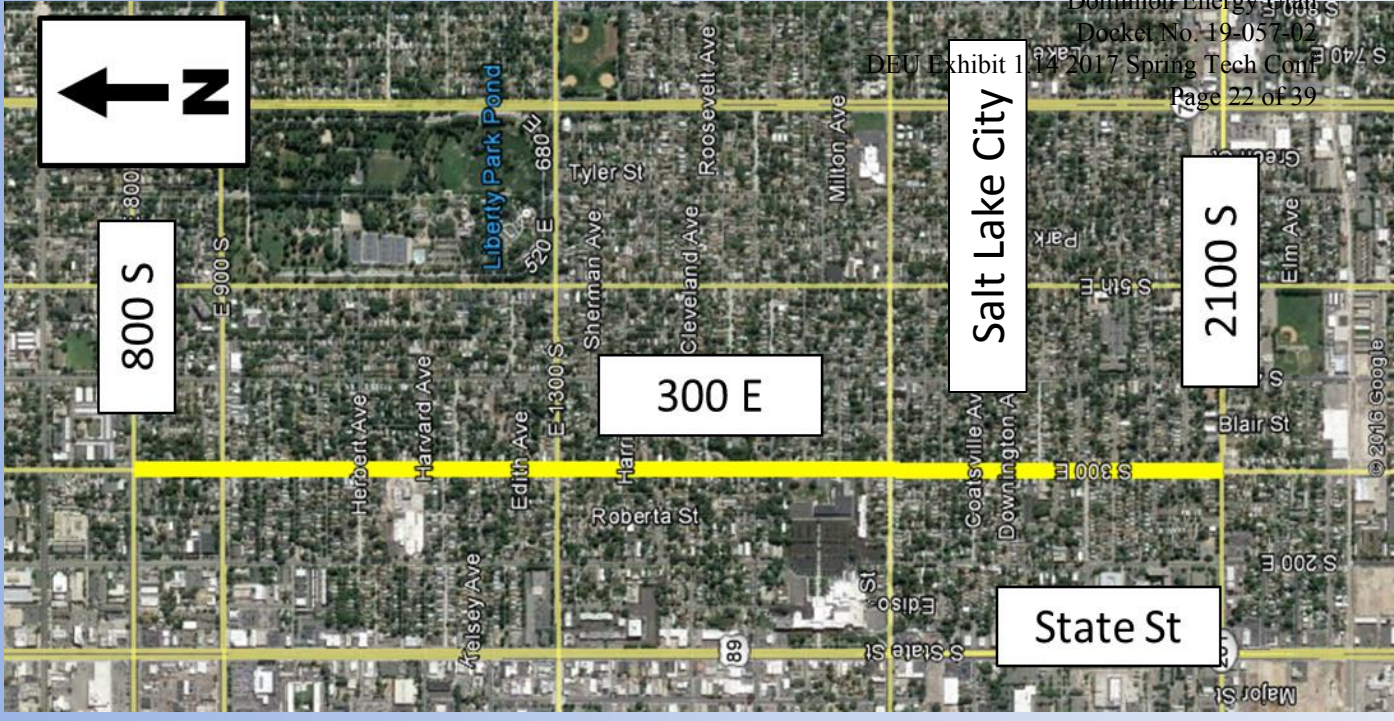
Belt Line Work 2017

Belt Line:	Davis County Beltline Replacement in conjunction with FL21-50 replacement
Construction:	January – December
Challenges Include:	Water table, working over existing lines, permits
Footage:	29,000 ft.



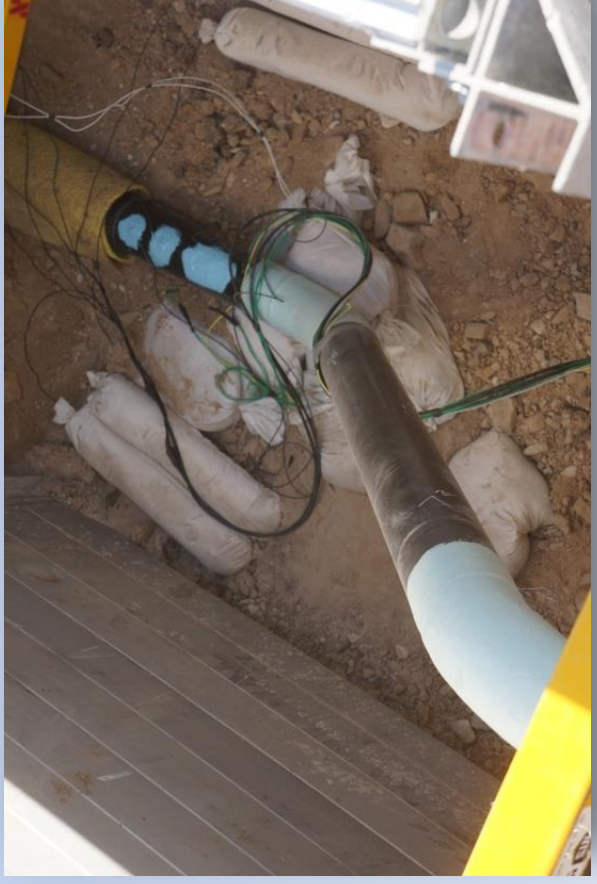
Belt Line Work 2017

Belt Line:	300 E between 800 S and 2100 Salt Lake City
Construction:	Summer 2017
Challenges Include:	Limited workspace, pick and relay due to congested utility corridor
Footage:	Approx. 3,300 ft.



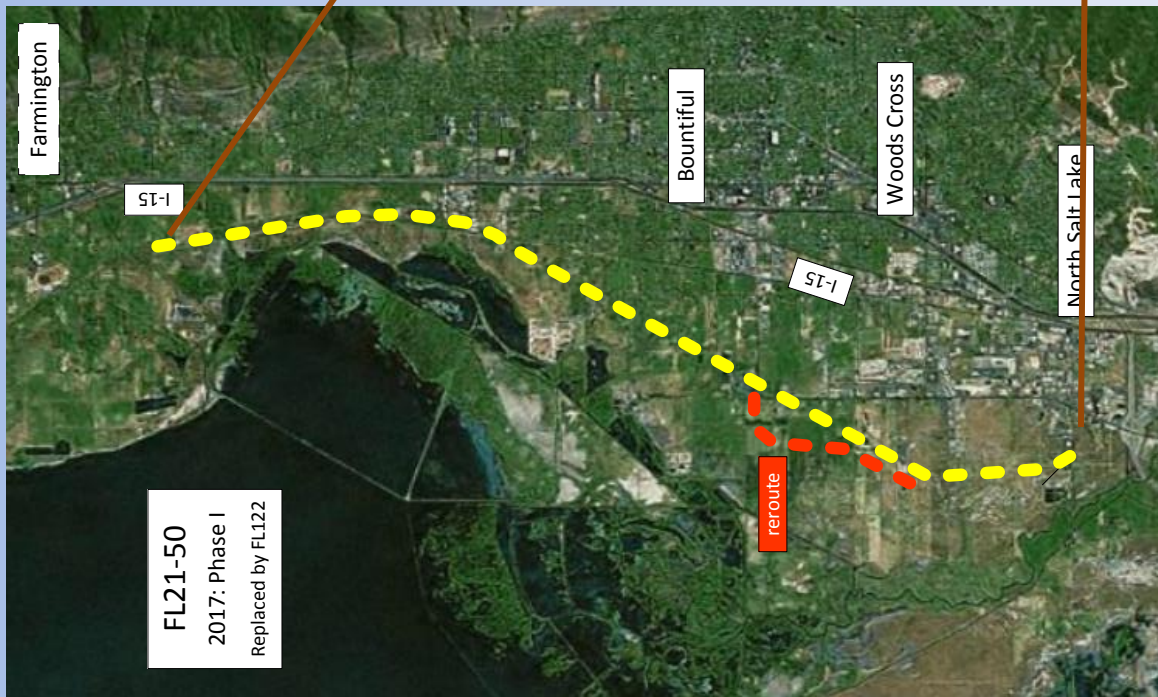
High Pressure Replacement

- HP Replacement Program
 - 2017 Projects Update
 - 2016 Cost Variance
 - Updated HP Replacement Program Evaluation Criteria
 - Scheduling



Feeder Line Update

Line:	21-50
Schedule:	2017-2020
Challenges Include:	Water table, working over existing lines, UDOT permits
2017 Budget	\$45,500,950
2017 Footage:	54,280 ft.



Feeder Line Update

Line:	PV0004 (tap on FL26)
Schedule:	2017 pending BYU approval
Challenges Include:	Coordination with BYU construction project
2017 Budget	\$400,000
2017 Footage:	1,400 ft. (to retire)



Feeder Line Update

Line:	FL51
Schedule:	Unknown
Challenges Include:	Coordinating construction schedules
2017 Budget	Unknown
2017 Footage:	Road construction by Weber County west of 2016 replacement work.



2016 Cost Variance

Project	Budget	Actual	Variance	Explanation
FL6	\$8,500,000	\$7,372,767	\$1,127,233	Retirement and Restoration efforts will be complete in spring 2017.
FL24	\$27,300,000	\$29,039,092	\$(1,739,092)	Multiple reroutes through Orem and Provo added extra time and footage. UDOT required bore be attempted. Failed bore crossing of a UDOT road.
FL21 (FL117)	\$17,000,000	\$16,594,897	\$405,103	Retirement and Restoration efforts will be complete in spring 2017
FL11-FL13	\$1,250,000	\$1,774,319	\$(524,319)	Expanded wetland and difficulty handling and disposing of ground water.
FL89	\$4,000,000	\$3,350,141	\$649,859	Retirement and Restoration efforts will be complete in spring 2017
FL51	\$4,000,000	\$3,698,440	\$301,560	Mild winter conditions and minimal restoration requirements contributed to this project being under planned spend.
Pre-engineering	\$550,000	\$500,045	\$49,955	
Total	\$62,600,000	\$62,329,702	\$270,299	

HP Replacement Risk Evaluation Criteria

Risk = Likelihood of Failure (Threat) x Consequence of Failure (Consequence)

Likelihood of Failure (LOF)

Previous	New
Construction Year (14% ^a)	Construction (15% ^b)
Pipe/Equipment Condition (24% ^a)	Manufacturing (55% ^b)
Manufacturing – Pipe (14% ^a)	External Corrosion (30% ^b)
Pressure Test Records (24% ^a)	
Reconditioned (24% ^a)	

^a SME-based weighting

^b Weighting based on Incident Counts from PHMSA Database

HP Replacement Risk Evaluation Criteria

Risk = Likelihood of Failure (Threat) x Consequence of Failure (Consequence)

Likelihood of Failure (LOF)

Previous	New
✓ Construction Year (14%^a) • Pre-1955 – High Risk • 1955 - 11/1970 – Medium Risk • Post 11/1970^a – Low Risk ✓ Pipe/Equipment Condition (24%^a) • SME	Construction (15%^b) ○ Construction Year • Pre-1948 or unknown • Post 1948 through pre-1955 • Post 1955 through November 1970 • Post November 1970 and pre-1985 • 1985 or later ○ Construction SME Factor ○ Leak History from Construction Threats
Manufacturing – Pipe (14%^a) Pressure Test Records (24%^a) Reconditioned (24%^a)	Manufacturing (55%^b) External Corrosion (30%^b)

^a SME-based weighting

^b Weighting based on Incident Counts from PHMSA Database

HP Replacement Risk Evaluation Criteria

Risk = Likelihood of Failure (Threat) x Consequence of Failure (Consequence)

Likelihood of Failure (LOF)

Previous	New
✓ Construction Year (14%^a) ✓ Pipe/Equipment Condition (24%^a) ✓ Manufacturing – Pipe (14%^a) • Low Freq Electric Resistance Weld – High • Electric Flash Weld – High • Longitudinal Seam Weld Factor < 1.0 – High • Pre-1960 – Medium Risk • Double Submerged Arc Weld • Submerged Arc Weld • Post 1960 – Low ✓ Pressure Test Records (24%^a) • Record not found – High • Record found - Low ✓ Reconditioned (24%^a) • Yes – High • No – Low	Construction (15%^b) Manufacturing (55%^b) ○ Longitudinal Seam Weld Type • (Low Freq) Electric Resistance Weld • Submerged Arc Welded • Electric Flash Weld • Seamless • Continuous Seam Weld • Double Submerged Arc Weld • High Frequency Electric Resistance Weld ○ Post-Construction Pressure Test • No test history or test less than 1.1 x MAOP • Test pressure of at least 1.10x MAOP • Test pressure to at least 1.25x MAOP • Test pressure to at least 1.50x MAOP • Test pressure to 2.00x MAOP or greater ○ Reconditioned Pipe Factor • Yes • No External Corrosion (30%^b)

^a SME-based weighting

^b Weighting based on Incident Counts from PHMSA Database

HP Replacement Risk Evaluation Criteria

Risk = Likelihood of Failure (Threat) x Consequence of Failure (Consequence)

Likelihood of Failure (LOF)

Previous	New
✓ Construction Year (14%^a) ✓ Pipe/Equipment Condition (24%^a) ✓ Manufacture – Pipe (14%^a) ✓ Pressure Test Records (24%^a) ✓ Reconditioned (24%^a)	Construction (15%^b) Manufacturing (55%^b) ○ Manufacturing SME Factor ○ Leak History from Manufacturing Threats ○ Operating Stress Level (%SMYS) • Below 10% • 10% to <20% • 20% to <30% • 30% to <40% • 40% or greater External Corrosion (30%^b) ○ TIMP Evaluation (Coating, Age, History, etc.)

^a SME-based weighting

^b Weighting based on Incident Counts from PHMSA Database

HP Replacement Risk Evaluation Criteria

Risk = Likelihood of Failure (Threat) x Consequence of Failure (Consequence)

Consequence of Failure (COF)

Previous HCAs (67%) Census Data (33%)	New Population (Safety) (80%) Throughput (Volume) (20%)
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HP Replacement Risk Evaluation Criteria

Risk = Likelihood of Failure (Threat) x Consequence of Failure (Consequence)

- Summary of Improvements
 - Industry expert, Dynamic Risk, developed algorithms for Questar Gas utilizing current industry data and research
 - PHMSA incident based threat weightings
 - Data-driven
 - Geographical-information-system (GIS) based
 - More parameters
 - Improved utilization of system data
 - Increased granularity

Feeder Lines

- Prioritized by HP criteria

Prev. HP Criteria

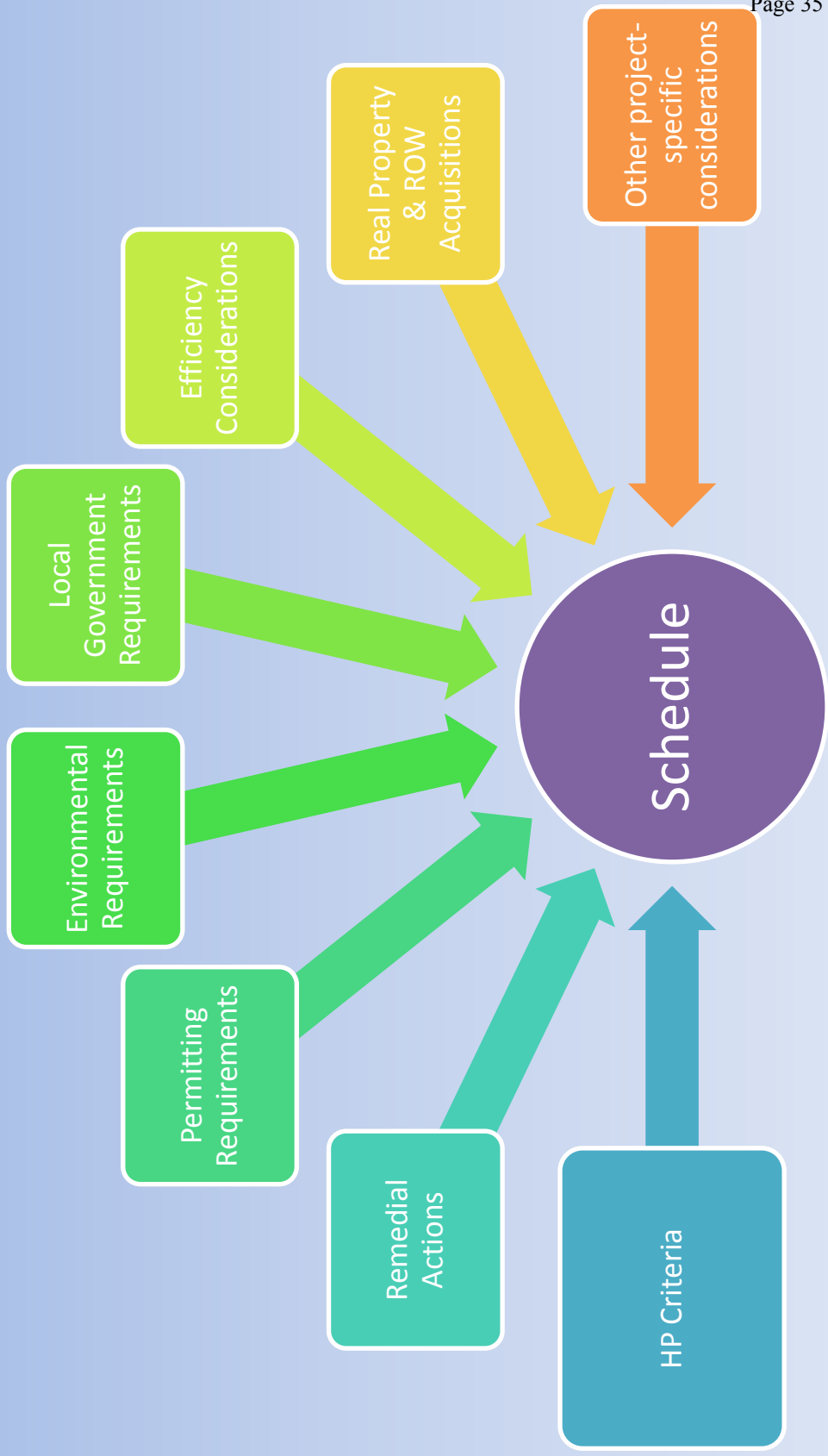


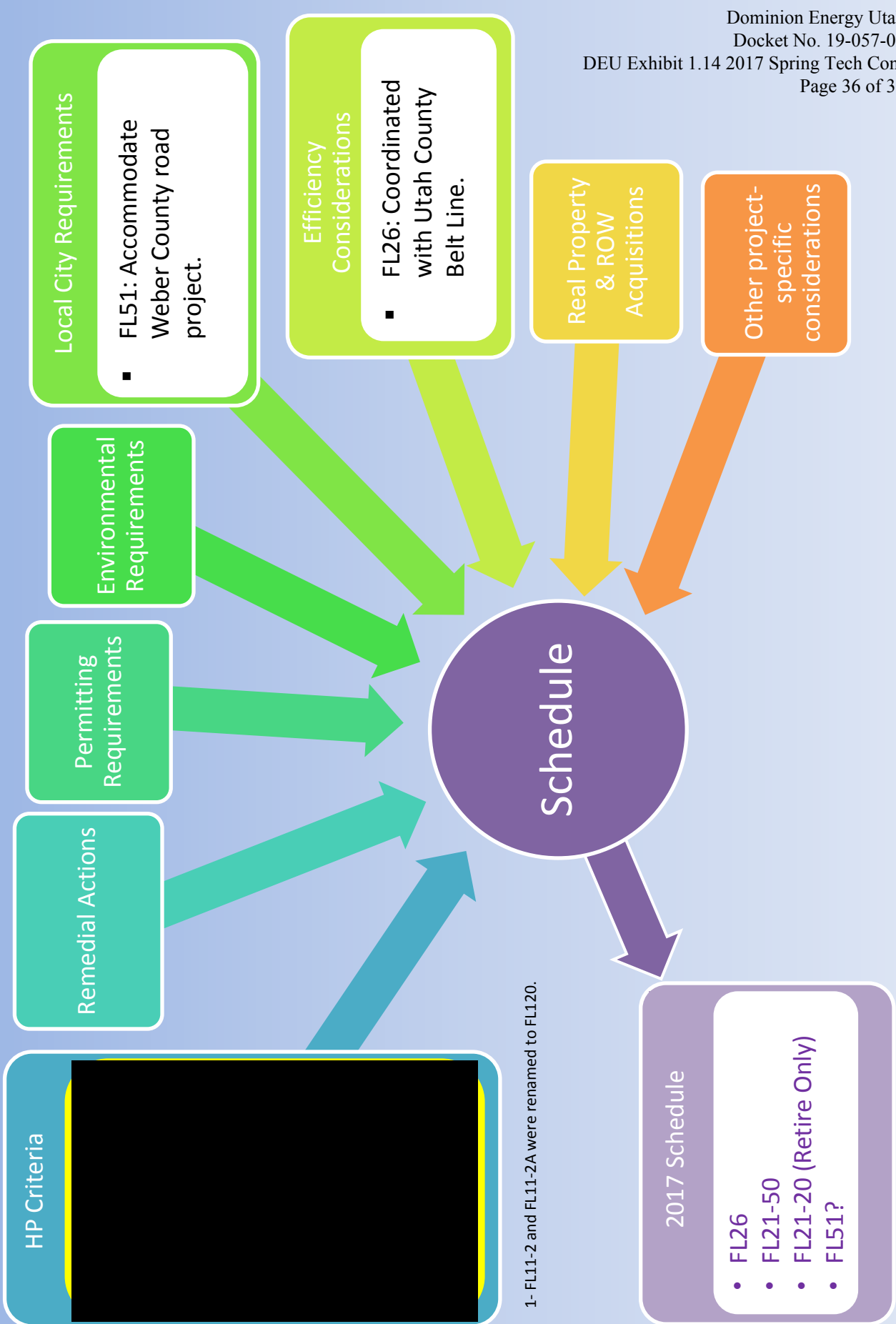
New HP Criteria



1- FL111-2 and FL111-2A were renamed to FL120.

Scheduling Feeder Line Replacements





2017 Schedule

Line	Location
FL26	Utah County
FL21	Davis County
FL51??	Weber County

Updated Schedule

- Original plan had a 2028 completion date.
- Updated plan has completion date as of 2035.
- Improved granularity of estimates.
- Costs higher than anticipated.
- Company anticipates seeking increase in annual budget in its next general rate case.

QUESTIONS?