Gilbert Project No. TS1940
Fiber Optic Strategic Buildout

Fiber Optic Implementation Plan Update

FINAL REPORT

Expires 03/31/26

May 25th, 2023

Prepared for:

gilbert

Town of Gilbert

Prepared by:

YSMA
We Shape Transportation & Telecommunications

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EXECUTIVE SUMMARY

In the year 2020, the Town retained Y.S. Mantri and Associates, LLC (YSMA) to prepare the TS1940 Fiber Optic Implementation Plan which set the framework for adding high-speed fiber optic cable to Town arterial corridors primarily for the purposes of connecting all the traffic signals. As the plan progressed, opportunities to connect branch fiber to Town owned field equipment and facilities owned by other departments such as water, wastewater, parks, and IT were also identified. The results of the report concluded that approximately 50 plus miles of arterial roadways will need to be equipped with fiber optic cable and over 130 Town facilities (water, wastewater, storm, fire stations, signals, recreation centers, etc.) can be connected to it, which can potentially eliminate the need of a third-party connection.

The TS1940 plan estimated over $30 million be added to the Town's Capital Improvement Plan to facilitate design and installation of the arterial fiber. To leverage planned construction throughout the Town, over $7 million was added to programmed CIP projects and the remaining $23+ million was used to fund programming of TS1940 Fiber Optic Strategic Buildout through the design and construction phases (FY23-FY26). The project is currently in the design phase, and YSMA was awarded the project as A/E consultant and C.S. Construction was awarded the project as the Construction Manager at Risk (CMAR).

As part of this report, YSMA re-evaluated the 2020 implementation plan to reflect any changes to the Town's Arterial Fiber network and re-validated the needs of various departments in terms of fiber connectivity with respect to their facilities.

Plan Objectives

The TS1940 project has allocated just over $22 million over the next three years to design and construct approximately 35 miles of fiber. As such, the objectives of the updated plan are as follows:

1. Review the current fiber infrastructure and finalize the gaps in the network to be designed and installed as part of the TS1940 design phase.

2. Revisit the priority needs of each of the departments and identify the opportunity to connect facilities to the fiber optic backbone.

3. Prepare 15% planning level cost estimates to install the backbone fiber along the arterials and the branch fiber to the respective department facilities.

4. Based on the department needs, present a three-year arterial fiber construction plan.

Project Stakeholders

Stakeholders from the following Town departments were invited to participate in the planning process:

- Project Management
- Information Technology
- Engineering
- Water
- Wastewater
- Public Works Management

- Town Manager's Office
- Storm Water
- Traffic Engineering
- Parks and Recreation
- Building Maintenance/Facilities
- Development Services
- Traffic Signal Shop
- Traffic Operations

Arterial Fiber Needs

Since 2007, Gilbert has installed approximately 100+ miles of fiber. To populate the remaining arterial roadways with fiber, 20+ miles of fiber is proposed as part of programmed CIP projects and 33 miles of fiber is proposed to be designed and installed as part of the TS1940 Fiber Optic Strategic Buildout project.

Department Needs

Meetings, workshops, and field investigations were held between Project Management, Information Technology (IT), and department representatives to gather an understanding of department needs and existing communication media. Based on the various discussions, the following sections summarize the fiber optic needs of the departments:

Traffic Engineering

At present there are 220 traffic signals in the Town, of which, 175 signals are directly on fiber, 42 signals are connected through radio, and five signals are interconnected through fiber, but connect back to the TOC via radio. Of the 47 signals not communicating via fiber, *TS1940 will create the branch connections to 28 traffic signals*.

Water Department

There are currently 28 water facilities throughout the Town and nine facilities that are planned for construction. All of the facilities are connected to the water Supervisory Control and Data Acquisition (SCADA) System hosted in the control room at the North Water Treatment Plant via 900MHz wireless radios. The goal is to transition the communication to Town owned fiber optic cable and keep the radios as a backup for redundancy. Of the 28 water facilities, *nine locations are adjacent to TS1940 fiber and the branch connection to the cabinets will be designed as part of TS1940*. It should be noted that the construction funding for these nine sites will have to be programmed by the Water department.

Wastewater Department

There are currently 30 wastewater water facilities throughout the Town. A new additional facility is planned to be constructed in the near future. The facilities at Desert Sky Park, Gilbert Regional Park, South Area Service Center, South Area Recharge Center are currently connected to fiber. Moreover, Candlewood Lift Station is programmed to be connected to fiber via Town Project WW0700. Some of the remaining 25 facilities are connected to the wastewater SCADA System, hosted in the Reservoir 3 Reuse Site, and others are not connected at all. The goal is to transition the communication to Town owned fiber optic cable and keep the cellular communications as a backup for redundancy. *Of the 25 facilities not connected to fiber, 10 locations are adjacent to TS1940 fiber and the branch connections to the cabinets will be designed as part of TS1940*. It should be noted that the construction funding for these ten locations will have to be programmed by the Wastewater department.

Stormwater Department

There are currently four stormwater facilities throughout the Town, two of which (Village II and Freestone Pump Stations) are programmed for upgrading in the next 3-5 years. Since the Stormwater Department does not have their own SCADA system, these facilities will not be connected to the TS1940 fiber at this time.

IT Supported Facilities

The Town IT department currently supports networking for the majority of Town facilities except for traffic signals, water, wastewater, and stormwater facilities. As such, there are currently 35 facilities throughout the Town that are supported by IT. Out of these, 22 facilities are connected to the Town fiber backbone, while the remaining are communicating via Cox or Lumen cable modems. The goal is to transition the communications to Town owned fiber optic cable. *Of the 13 locations not connected to Town fiber, the branch connection to four facilities will be designed and constructed as part of PR1336. In addition, two other locations are adjacent to TS1940 fiber and will be designed as part of TS1940.* IT will need to fund the construction cost for the two subject branch connections to their facilities.

PR1336 Parks Facility Fiber Connection

PR1336 Parks Facility Fiber Connection is a parks project to design and install fiber optic branch connections to the following four parks and recreation facilities:

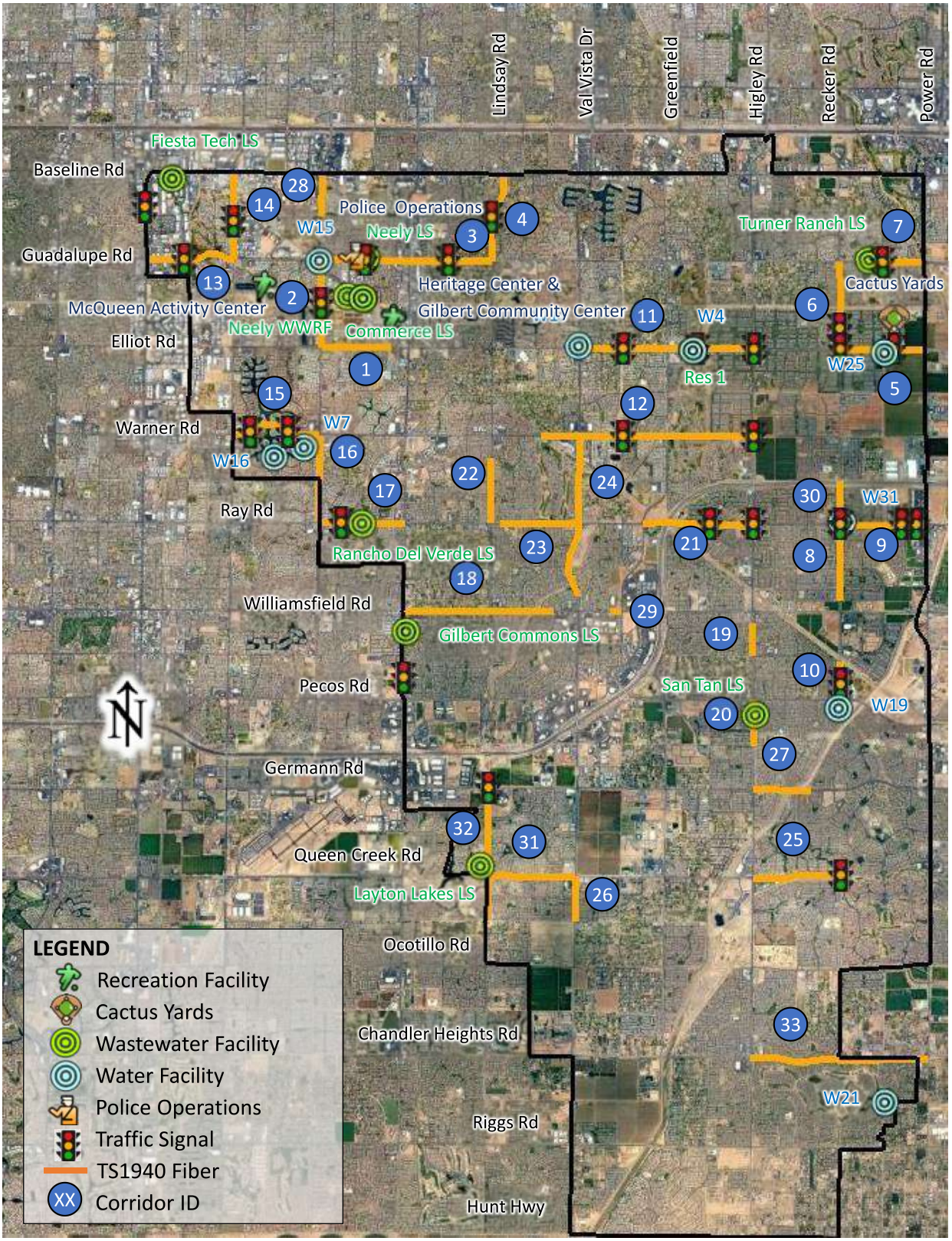
- McQueen Activity Center
- Gilbert Community Center
- Heritage Center
- Cactus Yards

PR1336 is currently programmed in the CIP and will be implemented concurrently to TS1940 arterial fiber installation.

Combined Facilities

The following graphic provides an overall map of all the facilities that will be designed by TS1940/PR1336 and their approximate location with respect to the TS1940 arterial fiber corridors.

Figure A: TS1940 Combined Facilities



Programming Considerations

The subject TS1940 project has a construction budget of just over $22 million dollars spread over the duration of three years. Design is anticipated to be completed by the end of calendar year 2023 and construction is anticipated to begin in calendar year 2024 (FY24). Thus, approximately $7.4 million dollars per year is available for the construction phase for each of the fiscal years FY24, FY25, and FY26. Accordingly, the report has prioritized projects to match the available budget.

To prioritize the corridors for implementation during the first, second, and third fiscal year of construction, a scoring mechanism was developed by YSMA. It is based on the number of facilities connected to the corridor and the importance of the facility being connected to the respective department.

Table A summarizes the corridor ranking based on the developed scoring criteria which can be found in the body of the report. Table B summarizes the suggested fiscal year construction assigned to each corridor.

Tables C and D present the fiscal year and respective budgets when the branch connections to the water and wastewater facilities can be added, i.e. once fiber is along the arterial, branch connection can be added to the respective cabinet.

It should be noted that parks, recreation, and IT supported facilities are located adjacent to arterial fiber suggested to be added in FY24. Thus, the branch connection to those facilities can be installed in FY24 as well.

See Figures B through D for the graphical depiction of the corridors and facility connections that can be constructed during FY24, FY25, and FY26.

See Appendix A for the detailed scoring matrix.

Table A: Arterial Corridor Rank

Corridor ID	Facilities adjacent to TS1940 Fiber	Connectivity Score	Facility Score	Total Score	Corridor Rank
11	6	60.0	63.9	123.89	1
3	4	40.0	80.0	120.00	2
9	4	40.0	67.2	107.22	3
5	3	30.0	55.0	85.00	4
1	3	30.0	35.0	65.00	5
17	2	20.0	37.5	57.50	6
10	2	20.0	34.4	54.44	7
12	2	20.0	30.0	50.00	8
21	2	20.0	30.0	50.00	8
15	2	20.0	30.0	50.00	8
32	2	20.0	27.5	47.50	11
7	2	20.0	25.0	45.00	12
2	2	20.0	23.3	43.33	13
13	2	20.0	22.5	42.50	14
16	2	20.0	22.2	42.22	15
20	1	10.0	17.5	27.50	16
4	1	10.0	15.0	25.00	17
6	1	10.0	15.0	25.00	17
14	1	10.0	15.0	25.00	17
25	1	10.0	15.0	25.00	17
18	1	10.0	15.0	25.00	17
33	1	10.0	13.9	23.89	22
8	0	0.0		0.00	23
19	0	0.0		0.00	23
22	0	0.0		0.00	23
23	0	0.0		0.00	23
24	0	0.0		0.00	23
26	0	0.0		0.00	23
27	0	0.0		0.00	23
28	0	0.0		0.00	23
29	0	0.0		0.00	23
30	0	0.0		0.00	23
31	0	0.0		0.00	23

Table B: Fiscal Year Construction Priorities

Corridor	FY24	FY25	FY26
11	$ 1,040,555.10		
3	$ 1,002,514.50		
9	$ 513,949.80		
5	$ 523,520.40		
1	$ 439,393.50		
17	$ 522,184.00		
10	$ 241,510.10		
12	$ 1,246,566.10		
21	$ 670,911.80		
15		$ 583,406.20	
32		$ 736,385.00	
7		$ 393,014.70	
2		$ 562,182.40	
13		$ 533,760.50	
16		$ 522,808.00	
20		$ 308,669.40	
4		$ 533,154.70	
6		$ 547,175.20	
14		$ 522,853.50	
25		$ 533,835.90	
18			$ 868,041.20
33			$ 1,001,254.80
8			$ 442,023.40
19			$ 254,490.60
22			$ 388,726.00
23			$ 513,104.80
24			$ 930,077.20
26			$ 270,805.60
27			$ 543,574.50
28			$ 258,520.60
29			$ 71,793.80
30			$ 373,228.70
31			$ 508,856.40
Total	**$ 6,201,105.30**	**$ 5,777,245.50**	**$ 6,424,497.60**

Table C: Fiscal Year Construction Priorities – WATER

Water Site	FY24	FY25	FY26
4	$ 57,450.00		
17	$ 28,800.00		
19	$ 110,460.00		
25	$ 49,260.00		
31	$ 41,880.00		
7		$ 173,505.00	
15		$ 40,425.00	
16		$ 277,035.00	
21			$ 350,790.00
Total	**$ 287,850.00**	**$ 490,965.00**	**$ 350,790.00**

Table D: Fiscal Year Construction Priorities – WASTEWATER

Wastewater Site	FY24	FY25	FY26
Neely LS	$ 21,930.00		
Neely WWRF	$ 209,460.00		
Commerce LS	$ 423,510.00		
Rancho Del Verde LS	$ 28,050.00		
Res 1	$ 28,620.00		
Fiesta Tech LS		$ 518,580.00	
Turner Ranch LS		$ 14,670.00	
San Tan LS		$ 19,320.00	
Layton Lakes LS		$ 66,390.00	
Gilbert Commons LS			$ 136,140.00
Total	**$ 711,570.00**	**$ 618,960.00**	**$ 136,140.00**

Figure B: FY24 Construction Corridors

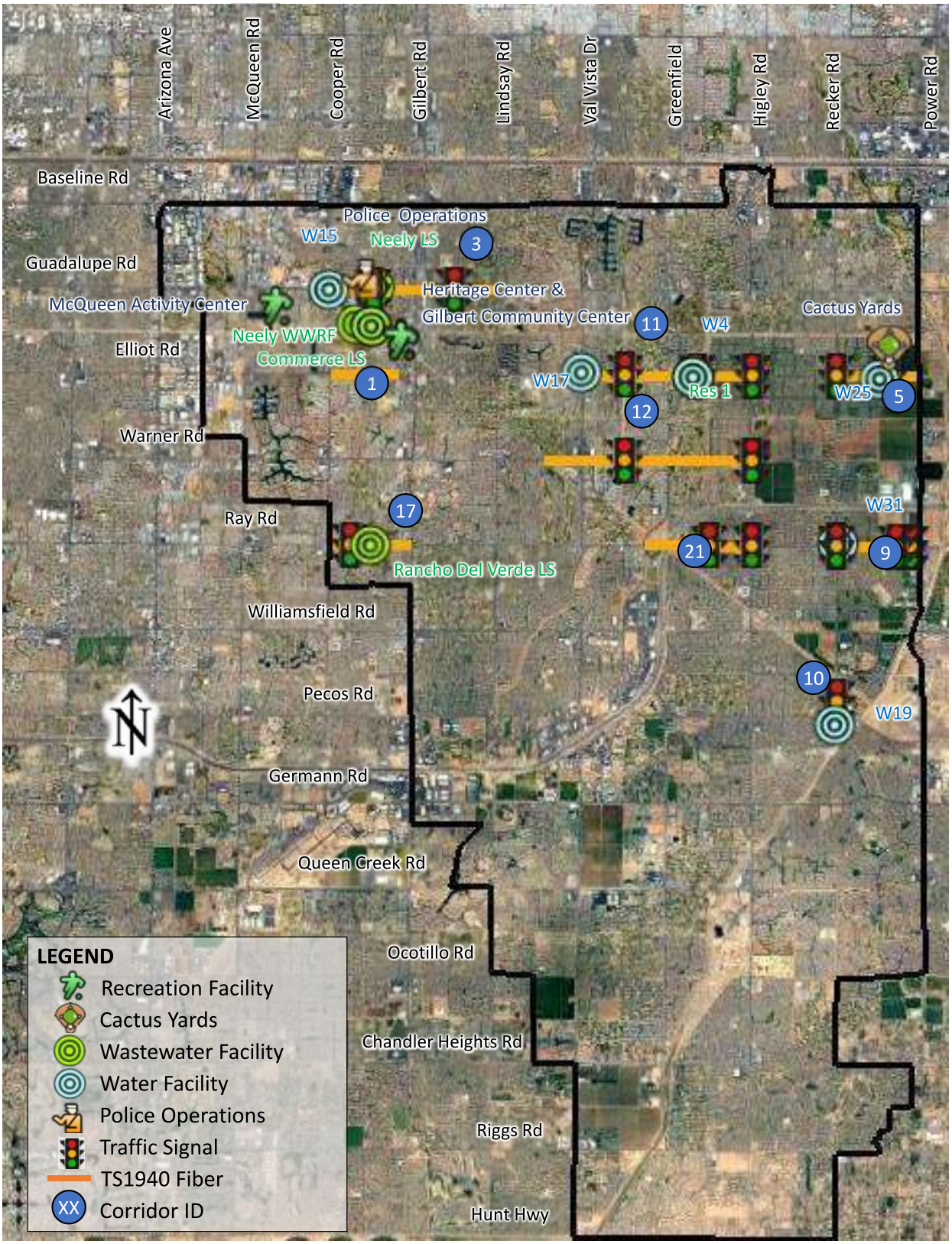


Figure C: FY25 Construction Corridors

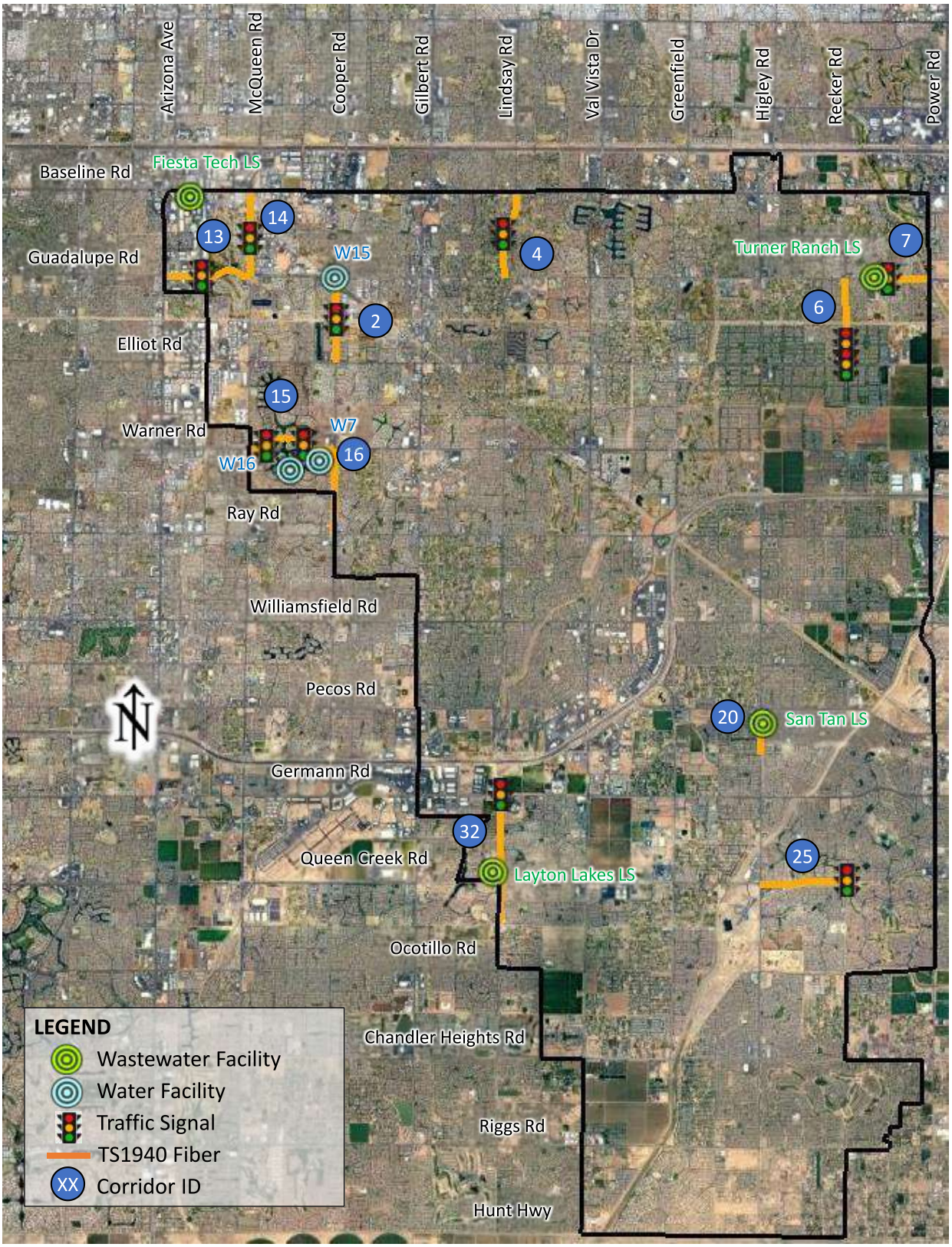


Figure D: FY26 Construction Corridors

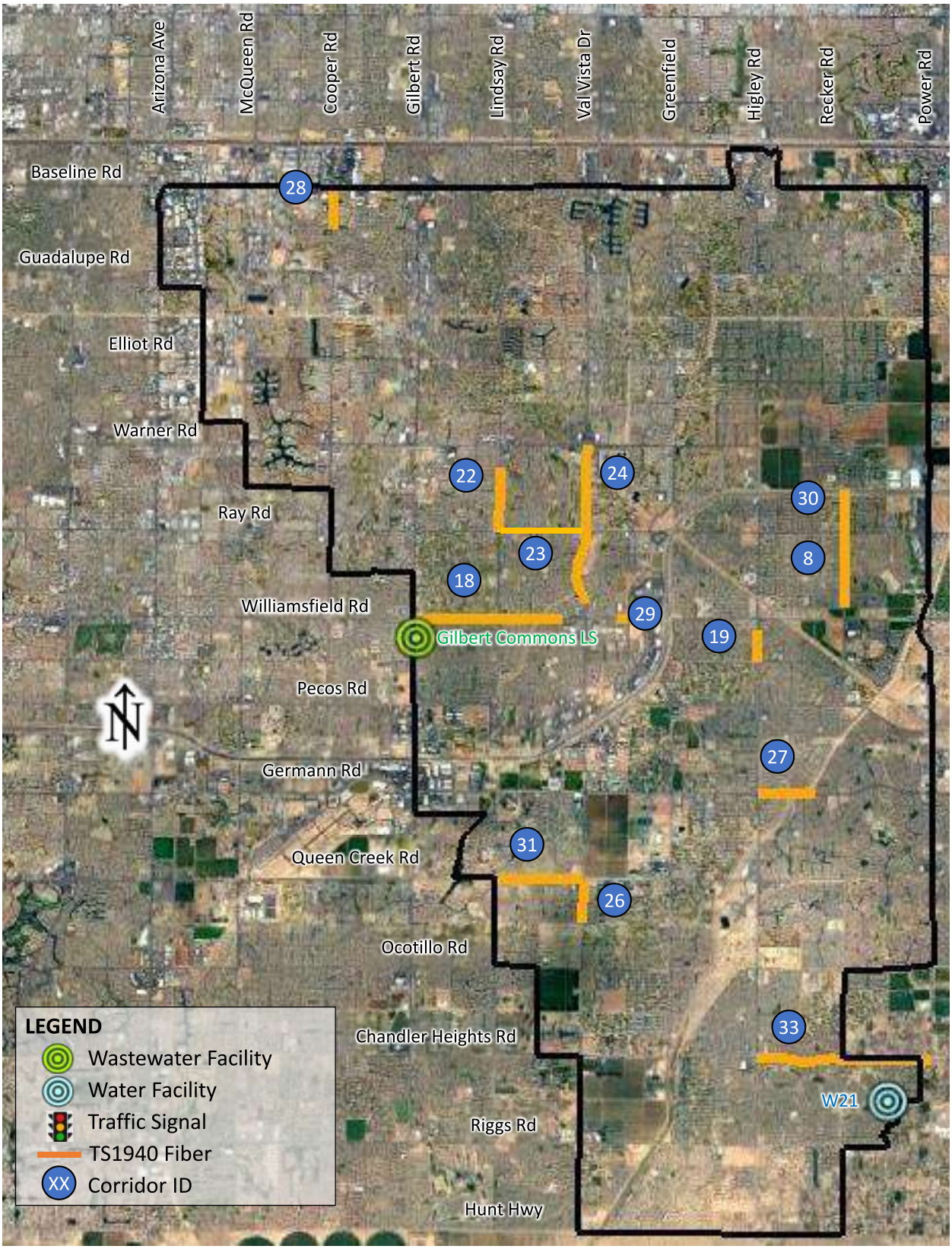


Table of Contents

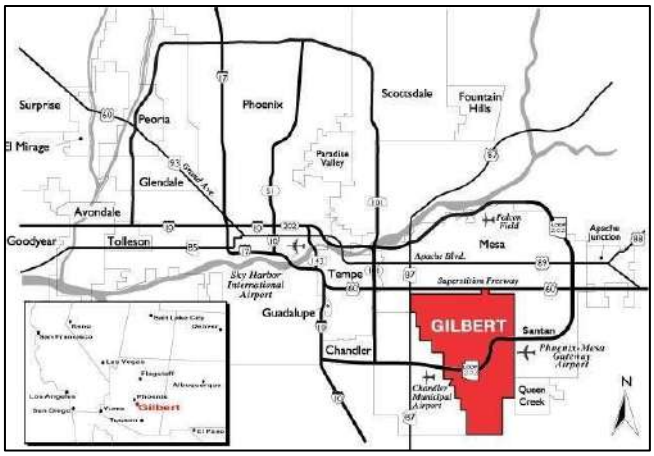
List of Tables

List of Figures

List of Appendices

1. Introduction and Background

The Town of Gilbert (Town) encompasses an area of roughly 72 square miles and is situated in the southeastern region of the Phoenix Metropolitan Area. The population has increased significantly from 29,000 residents in 1990, to over 248,000 residents in 2018, making it one of the fastest growing areas in the United States. To facilitate such a rapid growth, Gilbert has planned, designed, developed, and maintained a vast infrastructure of roadways; a network of water, wastewater, irrigation, and storm water facilities; parks, water parks, and libraries; and public safety buildings.



To accommodate the growing population and need for high-speed communications, in the year 2020, the Town retained Y.S. Mantri and Associates, LLC (YSMA) to prepare the TS1940 Fiber Optic Implementation Plan which set the framework for adding high-speed fiber optic cable to Town arterial corridors primarily for the purposes of connecting all the traffic signals. As the plan progressed, opportunities to connect branch fiber to Town owned field equipment and facilities owned by other departments such as water, wastewater, parks, and IT were also identified. The results of the report concluded that approximately 50 plus miles of arterial roadways will need to be equipped with fiber optic cable and over 130 Town facilities (water, wastewater, storm, fire stations, signals, recreation centers, etc.) can be connected to it, which can potentially eliminate the need of a third-party connection.

The TS1940 plan estimated over $30 million be added to the Town's Capital Improvement Plan (typ) to facilitate design and installation of the arterial fiber. To leverage planned construction throughout the Town, over $7 million was added to programmed CIP projects and the remaining $23+ million was used to fund programming of TS1940 Fiber Optic Strategic Buildout through the design and construction phases (FY23-FY26). The project is currently in the design phase, and YSMA was awarded the project as A/E consultant and C.S. Construction was awarded the project as the Construction Manager at Risk (CMAR).

2. Report Purpose

Since the TS1940 plan was prepared in 2020, YSMA re-evaluated the implementation plan to finalize the gaps in the arterial corridors and facilities identified in the report to ensure its validity considering changed field conditions, if any, or the department priorities.

3. Plan Objectives and Stakeholders

3.1 Plan Objectives

The objectives of the updated plan are as follows:

1. Review the current fiber infrastructure and finalize the gaps in the network to be designed and installed as part of the TS1940 design phase.

2. Revisit the priority needs of each of the departments and identify the opportunity to connect facilities to the fiber optic backbone.

3. Prepare 15% planning level cost estimates to install the backbone fiber along the arterials and the branch fiber to the respective department facilities.

Based on the department needs, present a three-year arterial fiber construction plan.

3.2 Stakeholders

Table 1 presents the project stakeholders who been involved in the project by attending project meetings and have been recipients of email communications, meeting minutes, and applicable technical reviews of design concepts.

Table 1: Project Stakeholders

Group/Department	Representative
Public Works	Jessica Marlow
Traffic Engineering	Aaron Pinkerton
	Clinton Emery
	Simon Addei
Traffic Operations	Mike Sutton
	Gary Bonner
	Ken Lowery
	Van Hallman
IT Department	Eugene Mejia
	Tony Bryson
	Alan Eubanks
	Joey Giammalva
Water	Rebecca Hamel
	Kurtis McDavid
	Chad Coleman
	Sergio Ysco
Wastewater	Ken Snow
	Patty Jordan
	Mike Bertrand
	Shane Hershey
	Daniel Romero
	Jonathan Schultz

Group/Department	Representative
Stormwater	Hondo Judd
	Carmelita Nichols
Facilities	Milan Perisic
	Amy Nugent
	Carmen Hernandez
	Brian Armstrong
Parks and Recreation	Robert Camona
	Kylie Sorensen
	Jennika Horta
Manager's Office	Nikki McCarty
	Allyna Bay
Development Services	Justin Isner
	Jason Hafner
Engineering CIP	Susanna Struble
	Rick Hooker
	Ryan Blair
	Jason Montgomery
Public Works	Eric Braun
Traffic Signal Shop	Shane Flynn

The project team has been conducting biweekly meetings since December 2022 starting with the project kickoff meeting on December 21, 2022. The plan goals and objectives were discussed in order to solicit participation from department leads. Active participation was encouraged as departments and facility representatives with high-speed communication needs were invited to contribute. Representatives provided locations of all their facilities and the combined locations of all the sites were mapped out on Google Earth in *.kmz* format. This map provided the discussion platform and created a central depository of connections identified.

4. Existing Town Fiber Optic Infrastructure

In 2005, Gilbert began installing fiber optic cable along its arterials primarily for the purposes of monitoring and operating traffic signals and managing traffic flows on arterial streets. The first phase, a 17-mile backbone loop, was completed in 2007 with the primary function of interconnecting traffic signals to the Town's Municipal Building (Muni I). The backbone loop provided redundancy in the communication system and was designed to allow for future fiber rings in the northwest, northeast, southern, and southeast regions. Since the original phase was implemented, the Town's Advance Traffic Management Systems (ATMS) program has since implemented Phase II, Phase III, Phase IV, upgraded the original Phase I fiber optic cable to 96 strands from 48 strands, and have installed miscellaneous fiber along other arterial corridors as part of separate traffic and streets projects. Currently in year 2023, the Town has installed approximately 100 miles of fiber along its arterials, implemented a standalone Traffic Operations Center (TOC), and has interconnected fiber with the City of Mesa and City of Chandler for traffic management purposes. Figure 1 depicts the location of existing fiber along Town arterials. As depicted on Figure 1, there are over 50 miles of arterial roadways which currently do not have fiber installed. Therefore, these missing fiber links need to be installed through programmed and future CIP projects as well as offsite improvements resulting from developments.

CIP Projects

A review of the FY2023 Town CIP was conducted to identify opportunities to leverage and include segments of the missing arterial fiber as part of programmed CIP streets and traffic projects. There are eight programmed CIP projects that were found that can be leveraged to install fiber on the arterials. Of the eight, TS1330 and TS1340 are specifically arterial fiber projects that are programmed in the next 6-10 yearsThese two projects will add approximately 14 miles of fiber to the Town fiber network. An additional 8-10 miles of fiber is proposed as part of CIP streets projects. See Figure 2 for a graphical depiction of the programmed CIP streets and traffic projects where fiber can be installed in the future.

The remaining arterial roadways without fiber have been identified and are the subject of the TS1940 Fiber Optic Strategic Buildout project. See Figure 3 for a graphical depiction of the TS1940 fiber.

Summary:

- 100+ miles of existing fiber installed and operational
- 20+ miles of fiber to be designed as part of programmed CIP Projects
- 33 miles of fiber to be designed and installed as part of TS1940 Fiber Optic Strategic Buildout

See Figure 4 showing the arterial fiber map with existing, programmed CIP, and TS1940 fiber.

Figure 1: Existing Arterial Fiber Optic Cable as of Year 2023

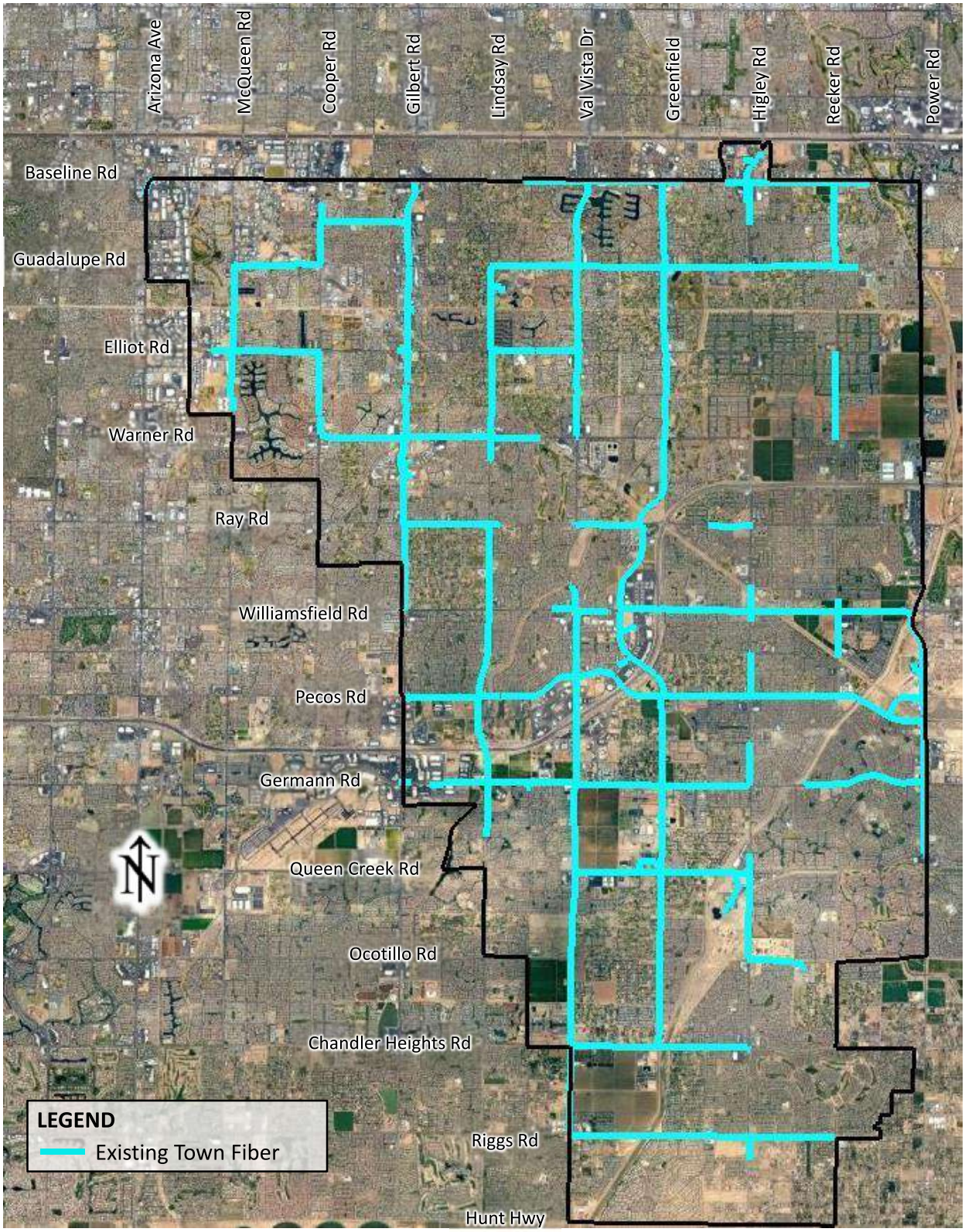


Figure 2: Programmed CIP Streets and Traffic Projects with Fiber

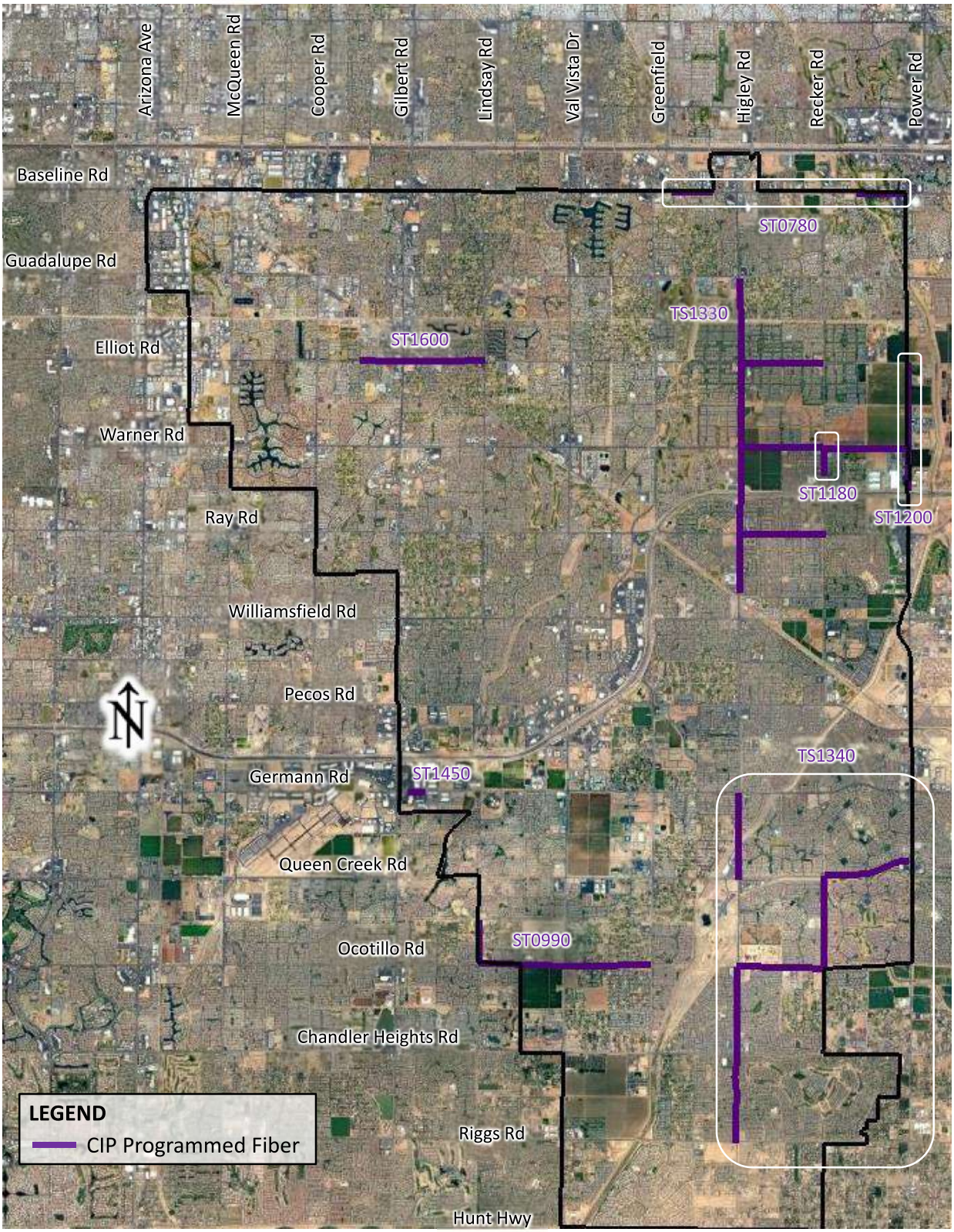


Figure 3: Proposed TS1940 Fiber

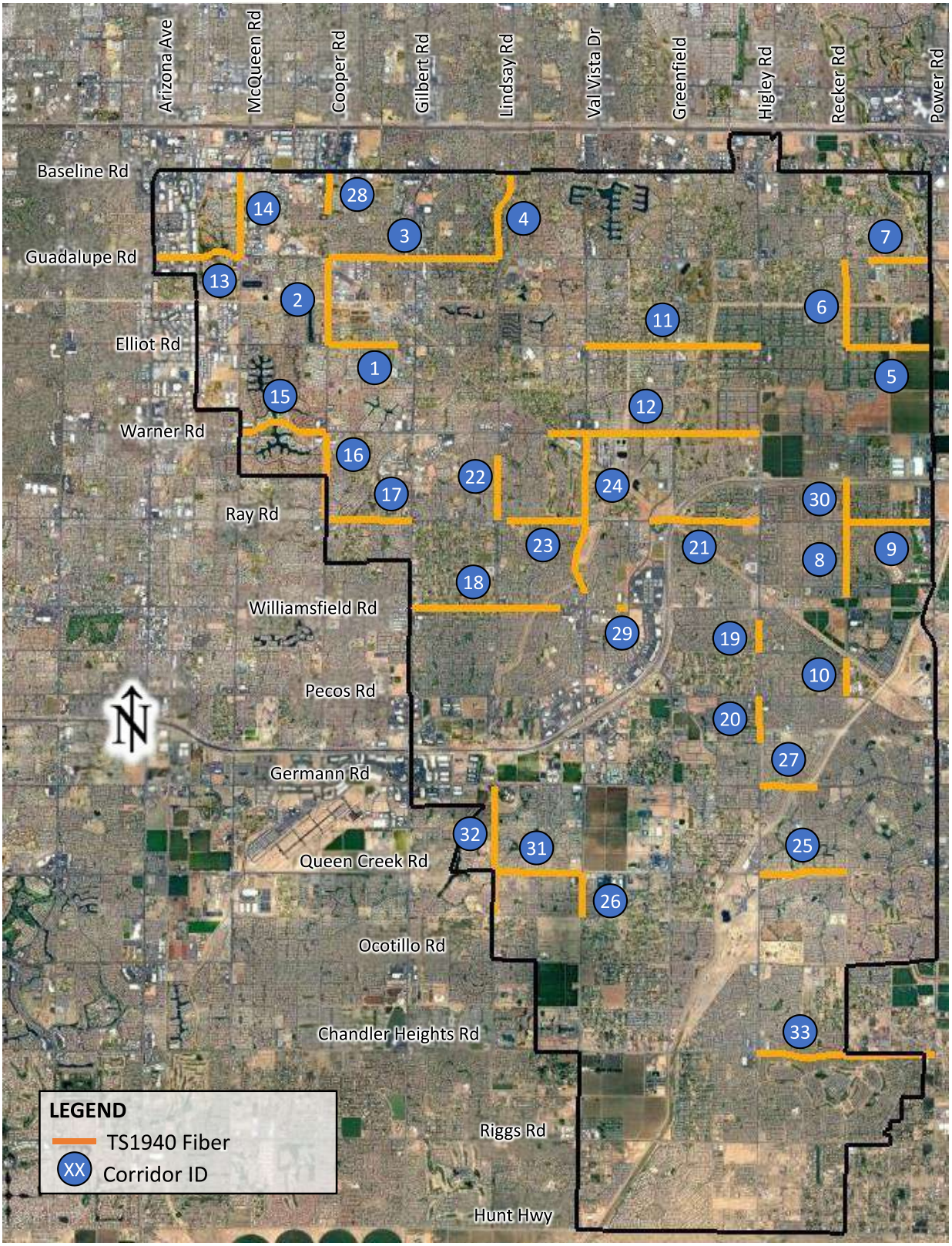
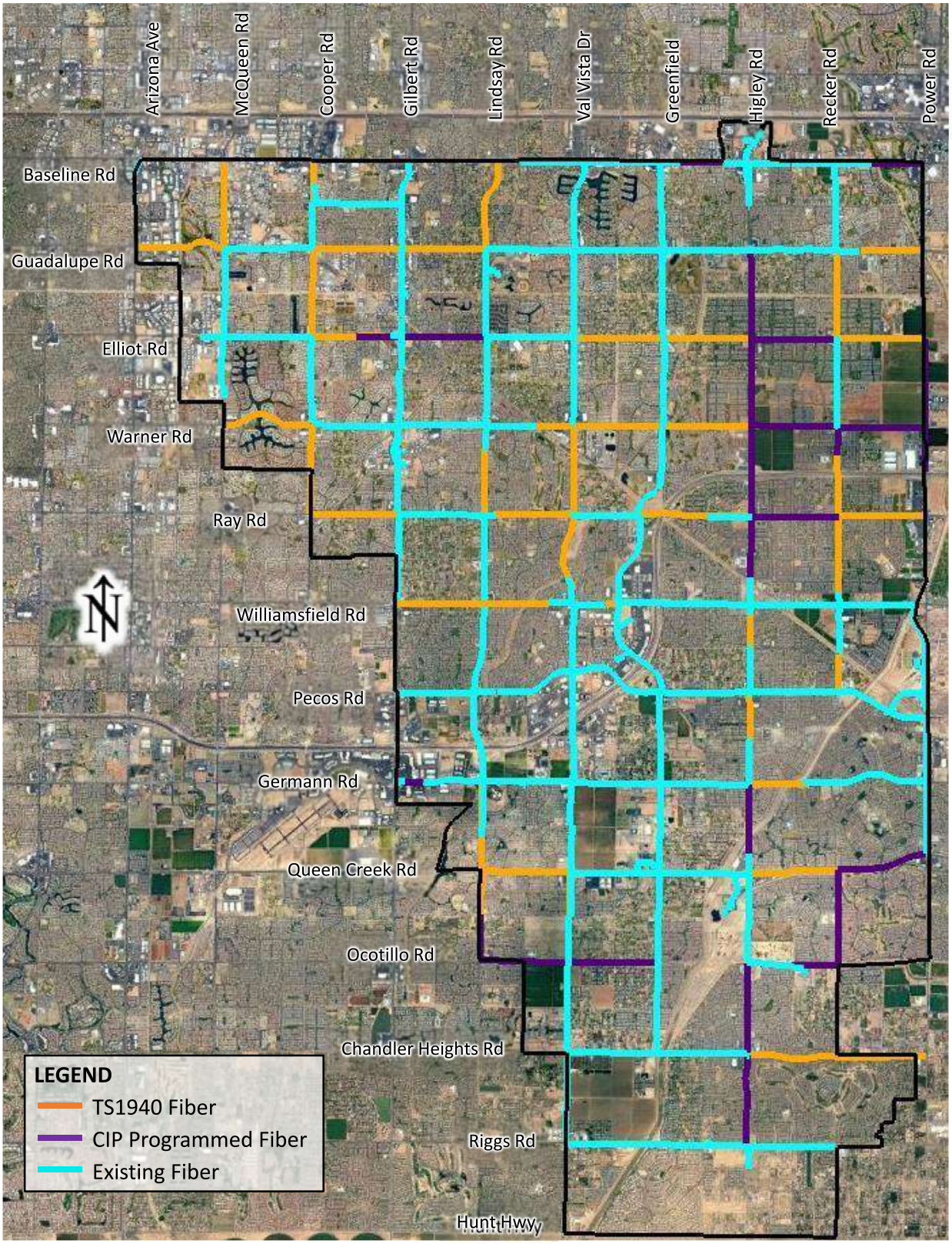


Figure 4: Combined Fiber Map



4.1 TS1940 Arterial Fiber 15% Construction Cost Estimates

A 15% cost estimate of the TS1940 fiber infrastructure has been presented below for each of the corridors.

Table 2: 15% Arterial Fiber Cost Estimate

Cor. No.	Conduit (1-4" & 1-Quad-Duct)		Fiber (144 SMFO)		Conduit (1-2")		12 SMFO with Gator Patch		No. 7 Pull Box		No. 9 Pull Box		Spring Loaded Cover		Splicing		Contingency /Below the Line Cost	Extended Cost
	Cost (LF)	$ 67	Cost (LF)	$ 3	Cost (LF)	$ 35	Cost (LF)	$ 12	Cost (EA)	$ 1,500	Cost (EA)	$ 8,500	Cost (EA)	$ 5,000	Cost (EA)	$5,000		
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	(LS)	30%	
1	4416	$ 295,872	4836	$ 14,508	25	$ 875	145	$ 1,740	5	$ 7,500	2	$ 17,000	0	$ -	1	$ 5,000	$ 102,749	$ 445,244
2	5681	$ 380,627	6125	$ 18,375	98	$ 3,430	218	$ 2,616	7	$ 10,500	2	$ 17,000	0	$ -	1	$ 5,000	$ 131,264	$ 568,812
3	10415	$ 697,805	10871	$ 32,613	141	$ 4,935	351	$ 4,212	8	$ 12,000	2	$ 17,000	0	$ -	2	$ 10,000	$ 233,570	$ 1,012,135
4	5464	$ 366,088	5872	$ 17,616	25	$ 875	145	$ 1,740	4	$ 6,000	2	$ 17,000	0	$ -	1	$ 5,000	$ 124,296	$ 538,615
5	5164	$ 345,988	5560	$ 16,680	0	$ -	120	$ 1,440	3	$ 4,500	2	$ 17,000	2	$ 10,000	1	$ 5,000	$ 120,182	$ 520,790
6	5561	$ 372,587	5969	$ 17,907	110	$ 3,850	230	$ 2,760	4	$ 6,000	2	$ 17,000	0	$ -	1	$ 5,000	$ 127,531	$ 552,635
7	3802	$ 254,734	4390	$ 13,170	25	$ 875	145	$ 1,740	4	$ 6,000	3	$ 25,500	0	$ -	1	$ 5,000	$ 92,106	$ 399,125
8	4619	$ 309,473	4835	$ 14,505	0	$ -	120	$ 1,440	3	$ 4,500	1	$ 8,500	0	$ -	1	$ 5,000	$ 103,025	$ 446,443
9	5249	$ 351,683	5453	$ 16,359	72	$ 2,520	282	$ 3,384	2	$ 3,000	1	$ 8,500	1	$ 5,000	1	$ 5,000	$ 118,634	$ 514,080
10	2283	$ 152,961	2307	$ 6,921	65	$ 2,275	185	$ 2,220	2	$ 3,000	0	$ -	2	$ 10,000	1	$ 5,000	$ 54,713	$ 237,090
11	10573	$ 708,391	11197	$ 33,591	195	$ 6,825	435	$ 5,220	7	$ 10,500	3	$ 25,500	1	$ 5,000	2	$ 10,000	$ 241,508	$ 1,046,535
12	12687	$ 850,029	12951	$ 38,853	25	$ 875	145	$ 1,740	7	$ 10,500	1	$ 8,500	6	$ 30,000	1	$ 5,000	$ 283,649	$ 1,229,146
13	5453	$ 365,351	5873	$ 17,619	25	$ 875	145	$ 1,740	5	$ 7,500	2	$ 17,000	0	$ -	1	$ 5,000	$ 124,526	$ 539,611
14	5304	$ 355,368	5700	$ 17,100	121	$ 4,235	241	$ 2,892	3	$ 4,500	2	$ 17,000	0	$ -	1	$ 5,000	$ 121,829	$ 527,924
15	5703	$ 382,101	6291	$ 18,873	0	$ -	0	$ -	4	$ 6,000	3	$ 25,500	2	$ 10,000	1	$ 5,000	$ 134,242	$ 581,716
16	5370	$ 359,790	5790	$ 17,370	0	$ -	0	$ -	5	$ 7,500	2	$ 17,000	0	$ -	1	$ 5,000	$ 121,998	$ 528,658
17	5192	$ 347,864	5420	$ 16,260	28	$ 980	148	$ 1,776	4	$ 6,000	1	$ 8,500	2	$ 10,000	2	$ 10,000	$ 120,414	$ 521,794
18	9038	$ 605,546	9926	$ 29,778	0	$ -	0	$ -	2	$ 3,000	0	$ -	3	$ 15,000	2	$ 10,000	$ 198,997	$ 862,321
19	2679	$ 179,493	3423	$ 10,269	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	2	$ 10,000	$ 59,929	$ 259,691
20	3017	$ 202,139	3233	$ 9,699	0	$ -	0	$ -	3	$ 4,500	1	$ 8,500	1	$ 5,000	2	$ 10,000	$ 71,951	$ 311,789
21	6857	$ 459,419	7289	$ 21,867	0	$ -	0	$ -	4	$ 6,000	0	$ -	3	$ 15,000	2	$ 10,000	$ 153,686	$ 665,972
22	4010	$ 268,670	4250	$ 12,750	0	$ -	0	$ -	3	$ 4,500	0	$ -	1	$ 5,000	2	$ 10,000	$ 90,276	$ 391,196
23	5384	$ 360,728	5456	$ 16,368	0	$ -	0	$ -	3	$ 4,500	0	$ -	1	$ 5,000	2	$ 10,000	$ 118,979	$ 515,575
24	10012	$ 670,804	10480	$ 31,440	0	$ -	0	$ -	6	$ 9,000	0	$ -	0	$ -	2	$ 10,000	$ 216,373	$ 937,617
25	5576	$ 373,592	5612	$ 16,836	25	$ 875	145	$ 1,740	3	$ 4,500	0	$ -	1	$ 5,000	2	$ 10,000	$ 123,763	$ 536,306
26	2720	$ 182,240	2744	$ 8,232	0	$ -	120	$ 1,440	2	$ 3,000	0	$ -	1	$ 5,000	2	$ 10,000	$ 62,974	$ 272,886
27	4281	$ 286,827	4329	$ 12,987	0	$ -	0	$ -	4	$ 6,000	0	$ -	0	$ -	2	$ 10,000	$ 236,861	$ 552,675
28	2585	$ 173,195	2609	$ 7,827	0	$ -	120	$ 1,440	2	$ 3,000	0	$ -	1	$ 5,000	2	$ 10,000	$ 60,139	$ 260,601
29	665	$ 44,555	677	$ 2,031	0	$ -	120	$ 1,440	1	$ 1,500	0	$ -	0	$ -	2	$ 10,000	$ 17,858	$ 77,384
30	3668	$ 245,756	3860	$ 11,580	109	$ 3,815	229	$ 2,748	1	$ 1,500	1	$ 8,500	1	$ 5,000	2	$ 10,000	$ 86,670	$ 375,569
31	5277	$ 353,559	5493	$ 16,479	50	$ 1,750	170	$ 2,040	3	$ 4,500	1	$ 8,500	0	$ -	2	$ 10,000	$ 119,048	$ 515,876
32	7742	$ 518,714	7982	$ 23,946	50	$ 1,750	170	$ 2,040	5	$ 7,500	1	$ 8,500	0	$ -	2	$ 10,000	$ 171,735	$ 744,185
33	10635	$ 712,545	10887	$ 32,661	50	$ 1,750	170	$ 2,040	6	$ 9,000	1	$ 8,500	0	$ -	2	$ 10,000	$ 232,949	$ 1,009,445
Total Arterial Fiber Installation																		**$18,499,438**

5. Department Assessment Needs

Identifying opportunities to connect Town facilities to the backbone fiber is another objective of the TS1940 project. In year 2020, YSMA conducted workshops and site visits to each of the water, wastewater, stormwater, recreation centers, public works, and other IT supported facilities. The objective of those tasks was to identify number and location of said facilities, connection priorities, and communication end equipment required to connect the facilities to the Town fiber. To confirm the validity of the previous information gathered, workshops and site visits were again conducted. The findings were documented and discussed with department representatives for review and concurrence in the first quarter of 2023. Preliminary 15% construction cost estimates to connect Town facilities to the backbone fiber were also presented to the respective departments.

The strategy proposed in the TS1940 Fiber Optic Implementation Plan prepared in 2020 has been utilized to cost effectively connect Town facilities to the Town fiber network. The strategy is as follows:

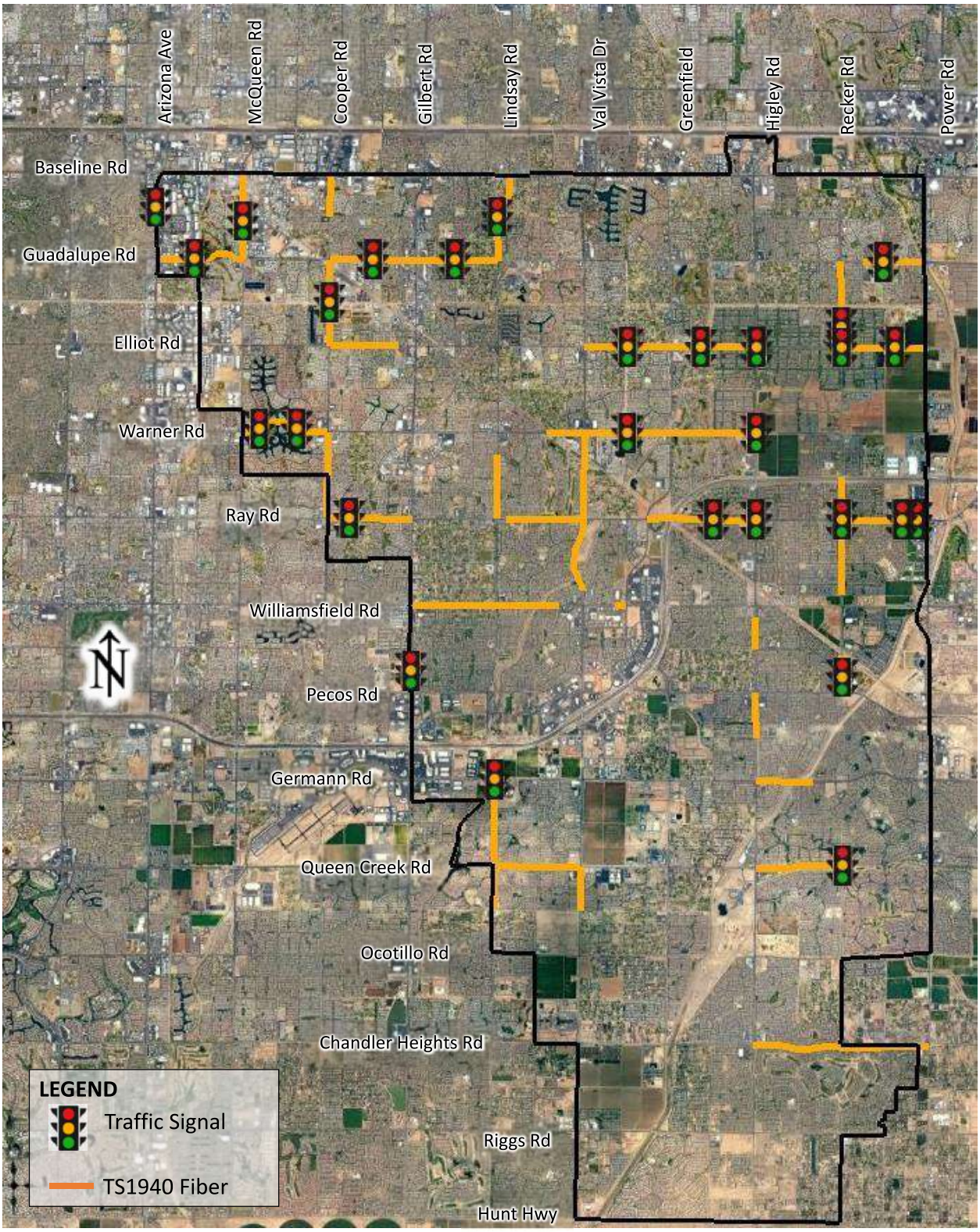
1. Design and construct fiber optic branch connections to the facilities which are adjacent to arterial fiber planned to be constructed by TS1940 (herein after referred as the TS1940 Fiber). The design fee to be covered by TS1940 and the branch construction to the sites will be the responsibility of the respective departments.
2. Leverage future programmed CIP projects adjacent to the department facilities, and design fiber optic branch connections to these facilities as part of those respective CIP projects. Design and branch construction to the sites will be the responsibility of the respective departments.
3. Design and construct fiber optic branch connections to the remaining department facilities which are not included in categories 1 or 2 above. These facilities will be standalone projects which are already adjacent to existing backbone fiber.

The following sections summarize the fiber optic needs of the represented departments and connection mechanisms as they relate to items 1-3 above.

5.1 Traffic Engineering Needs

The fiber infrastructure historically has been constructed to monitor and operate traffic signals from the Town Traffic Operation Center (TOC). The TOC plays a critical role in managing the fiber network as staff maintains the fiber, physical infrastructure, and communication end equipment, such as switches and racks. The TOC keeps an ongoing inventory of the equipment and installed fiber. As part of this updated plan, the TOC intends to communicate to all traffic signals with fiber. Since TS1940 was initiated by the Traffic Department, design and construction of the branch cables to the traffic signal cabinets is included as part of the arterial backbone fiber. At present there are 220 traffic signals in the Town, of which, 175 signals are directly on fiber, 42 signals are connected through radio, and five signals are interconnected through fiber, but connect back to the TOC via radio. Of the 47 signals not communicating via fiber, TS1940 will create the branch connections to 28 traffic signals. See Figure 5 for the signals to be connected as part of TS1940 fiber.

Figure 5: Traffic Signals Adjacent to TS1940 Fiber



5.2 Water Department Needs

There are currently 28 water facilities throughout the Town and eight facilities that are planned for construction. All of the facilities are connected to the water Supervisory Control and Data Acquisition (SCADA) System hosted in the control room at the North Water Treatment Plant via 900MHz wireless radios. The goal is to transition the communication to Town owned fiber optic cable and keep the radios as a backup for redundancy. See table 3 for a list of water facilities and the connection priorities as provided by the Town. For a graphical depiction of the facilities that are adjacent to TS1940 Fiber, programmed CIP fiber, or existing fiber, see Figures 6-8. Figure 9 shows all the water facilities combined in one map with existing and proposed fiber.

Table 3: List of Water Facilities

Priority No.	Well Site	Address/Location	Fiber Connectivity By:		
			TS1940	CIP	Standalone
1	Well Site #25	4425 E. Elliot Road	☑	☐	☐
2	Lindsay Road Reservoir	2025 S. Lindsay Road	☐	☐	☑
3	Well Site #31	4012 E. Ray Road	☑	☐	☐
4	Booster Site # 26	5539 E. Baseline Road	☐	☐	☑
5	Well Site #28	2820 E. Riggs Road	☐	☐	☑
6	Freeman Farms Booster Site	6235 S. Greenfield Road	☐	☐	☑
7	Well Site #19 (SRP Well)	3270 S. Recker Road	☑	☐	☐
8	Well Site #24	2710 E. Williams Field Road	☐	☐	☑
9	Well Site #7	925 S. Islands Drive	☑	☐	☐
10	Well Site #12	1020 E. Juniper Street	☐	☐	☑
11	Well Site #3 (SRP Well)	201 E. Watertank Road	☐	☐	☑
12	Booster Site #21	4340 E. Riggs Road	☐	☐	☑
13	Booster Site #5	1060 N. Nevada Street	☐	☐	☑
14	Well Site #22	4858 S. Recker Road	☐	☑	☐
15	Booster Site #31	1525 S. 174th Street	☐	☑	☐
16	Well Site #20	4785 E. Queen Creek Road/Power	☐	☑	☐
17	Well Site #14	149 W. Vaughn Ave	☐	☑	☐
18	Well Site #29	3664 S. 156th St.	☐	☐	☑
19	Well Site #21	4419 E. Enclave Blvd	☑	☐	☐
20	Well Site #17 (SRP Well)	1580 E. Elliott Road	☑	☐	☐
21	Well Site #15 (SRP Well)	785 N. Cooper Road	☑	☐	☐
22	Well Site #23	3011 E. Baseline Road	☐	☐	☑
23	Well Site #16 (SRP Well)	1200 S. Islands Dr	☑	☐	☐
24	Well Site #4 (SRP Well)	16215 E. Elliott Road / 2639 E. Elliott Rd	☑	☐	☐
25	Well Site #8	2835 E. Guadalupe Road	☐	☐	☑
26	Well Site # 30	4164 S. Val Vista Drive	☐	☐	☑
27	Booster Site #30	2029 E. Germann Road	☐	☐	☑
28	Well #20 Pump Station	8330 S. Power Road/Queen Creek	☐	☐	☑
29	Well Site #32	Recker Rd near Bridges Rd	☐	☐	☑
30	*Waterson Well (future)*	*Ocotillo and Val Vista*	☐	☐	☑
31	*SRP Joint Well (future)*	*McQueen/ Guadalupe*	☐	☐	☑
32	*Morrison 300 (future)*	*Power and Elliot*	☐	☐	☑
33	*PRV Station (future)*	*Riggs and RWCD*	☐	☐	☑
34	*PRV Station (future)*	*Higley and Germann*	☐	☐	☑
35	*PRV Station (future)*	*Well Site #4*	☐	☐	☑
36	*PRV Station (future)*	*NWTP*	☐	☐	☑

Figure 6: Water Facilities Adjacent to TS1940 Fiber

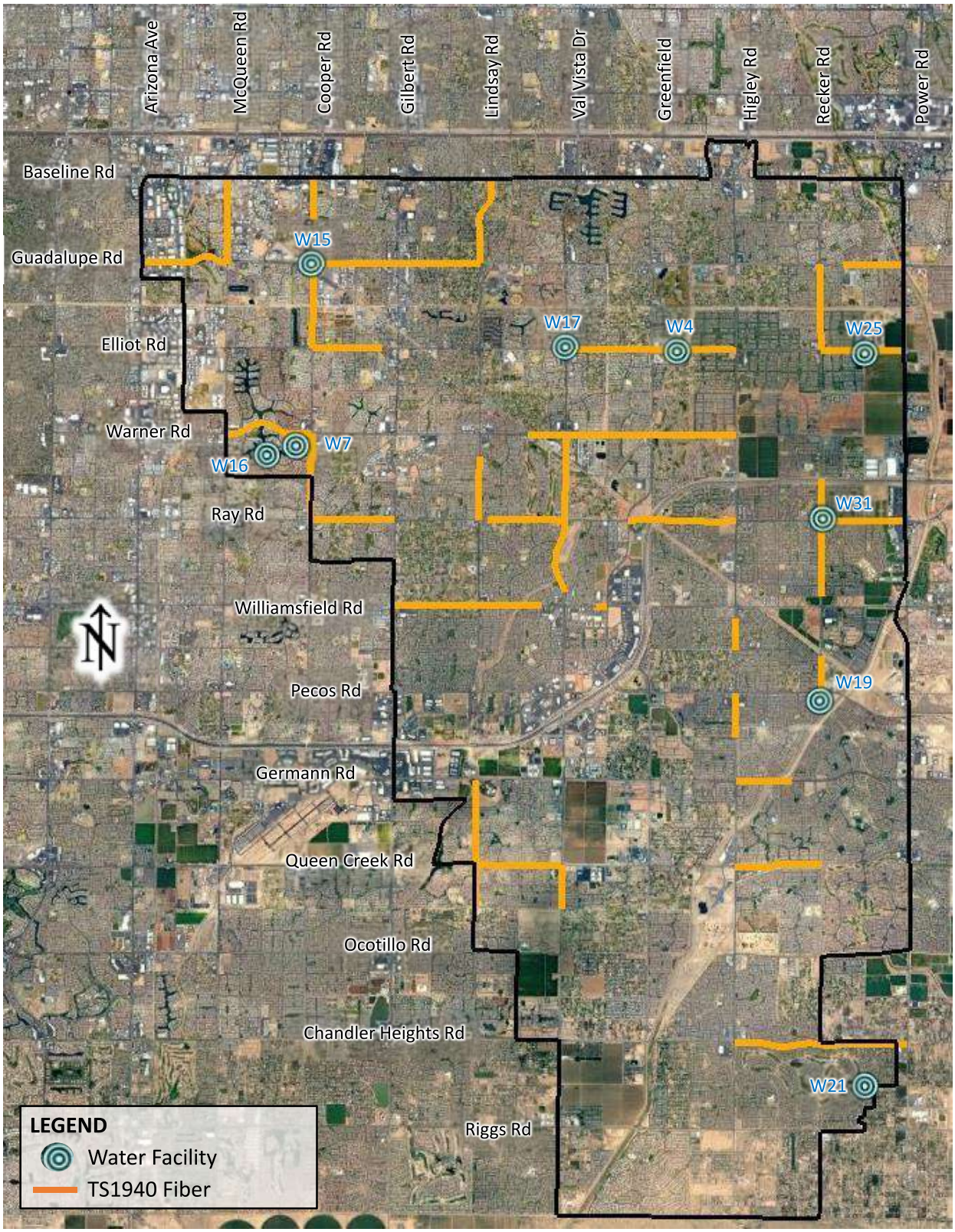


Figure 7: Water Facilities Adjacent to CIP Fiber

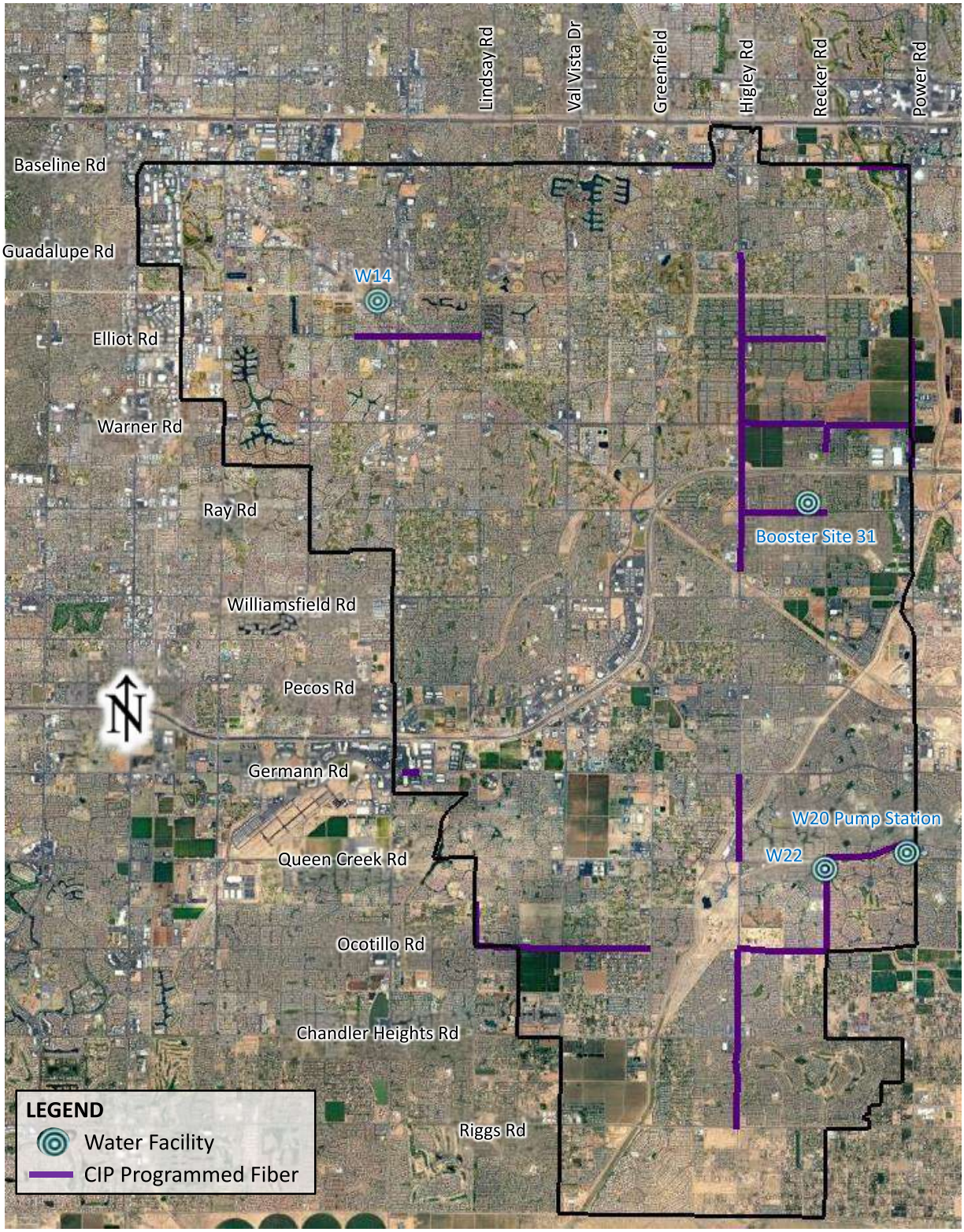


Figure 8: Water Facilities Adjacent to Existing Fiber

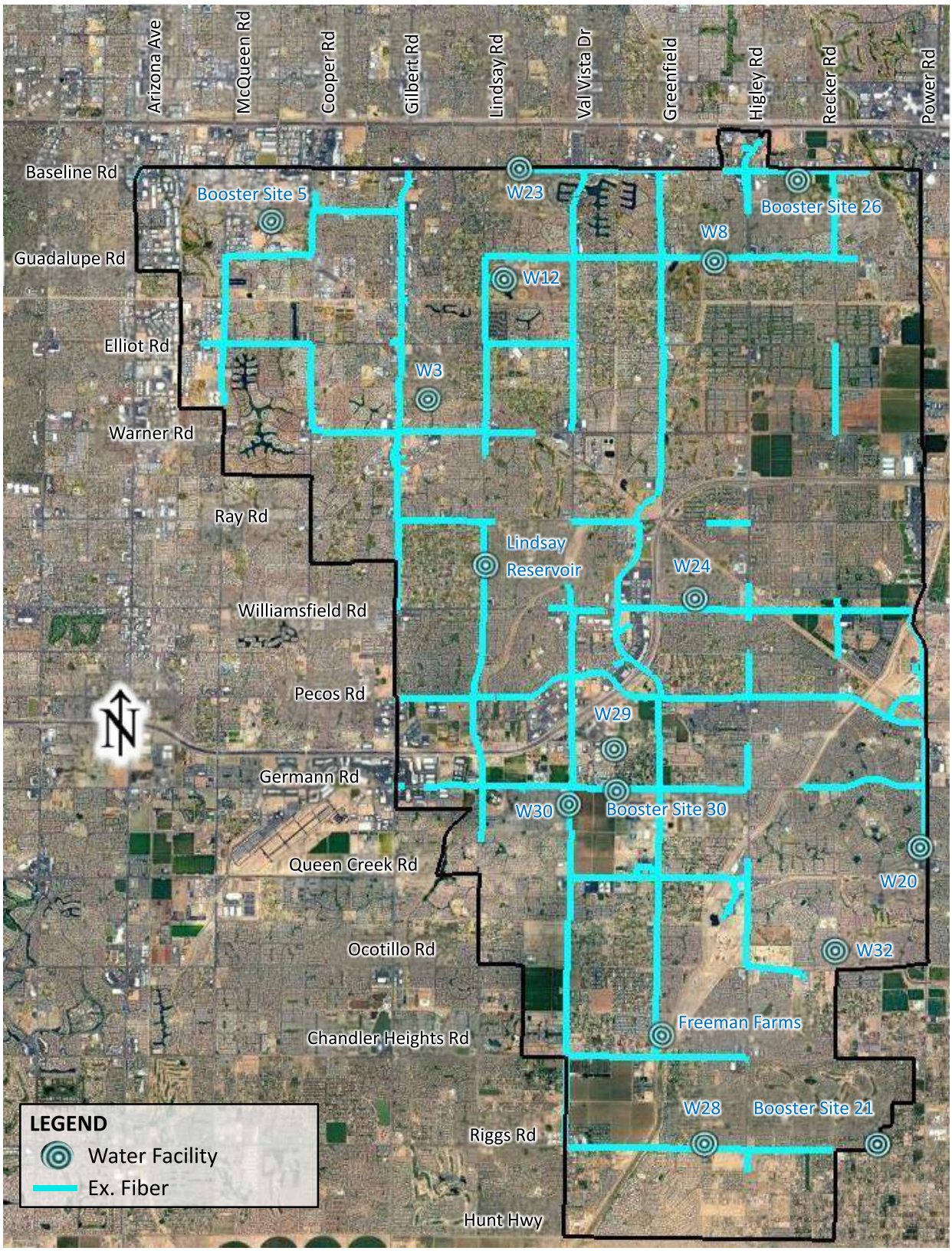
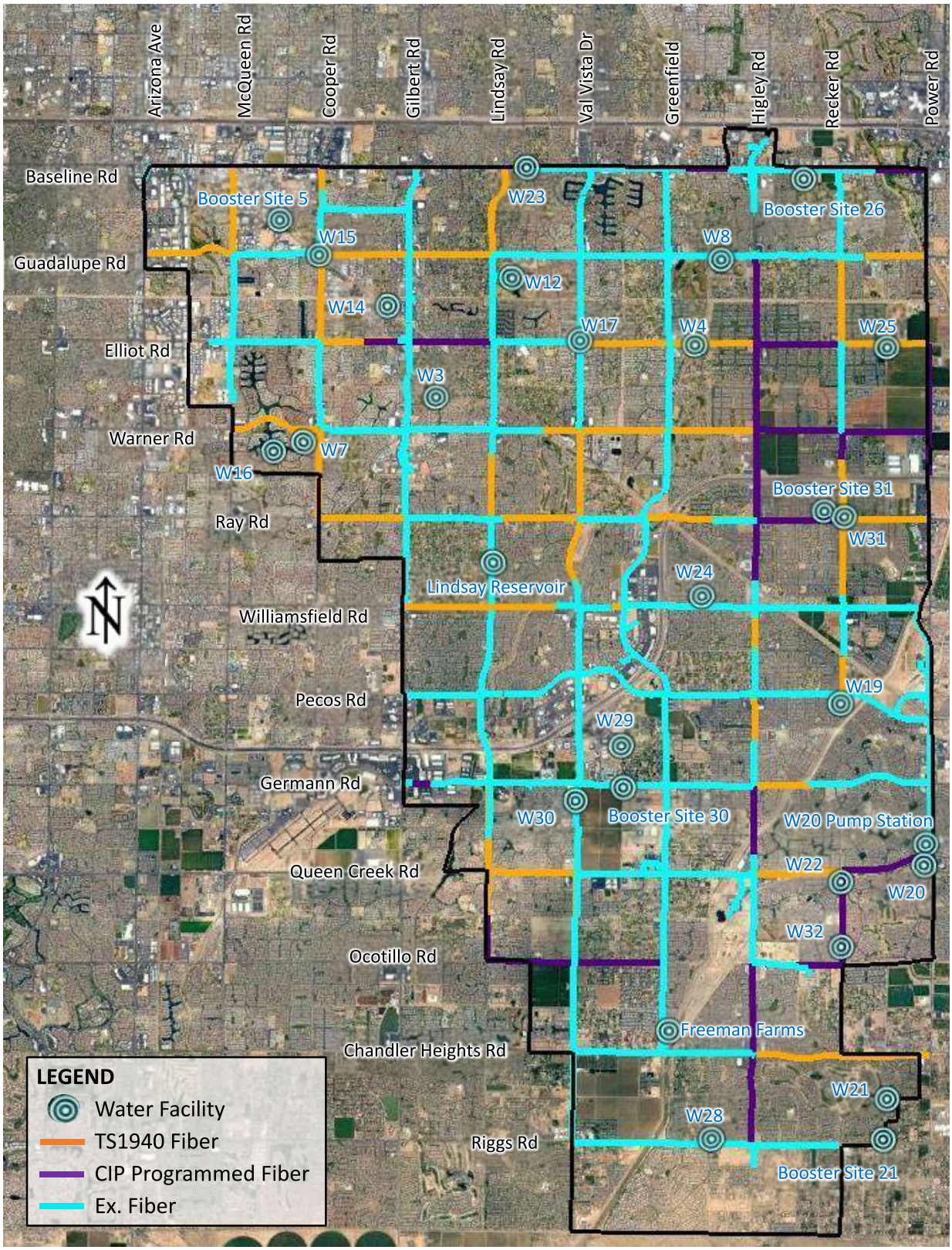


Figure 9: Combined Water Facilities



15% itemized cost estimates for each water connection have been prepared and presented in table 4. The costs consider conduit routing, fiber, splicing, approximate number of pull boxes, and communication end equipment required for fiber connectivity to the water controllers. It should be noted that costs do not include upgrading/installing Programmable Logic Controllers (PLC) or other cabinet equipment. Preliminary alignments have been included in the project Google Earth (.kmz) file, which has been shared with the project team.

Table 4: Water Facilities Connection – 15% Cost Estimate

No.	Location	Conduit (1-2")		12 SMFO with Gator Patch		No. 7 Pull Box		No. 9 Pull Box		Layer 2 Switch w/ Jumpers & Mounting		Splicing	Allowance[1]	Eng. Design[2]	Extended Cost
		Cost (LF)	$ 50	Cost (LF)	$ 12	Cost (EA)	$1,500	Cost (EA)	$8,500	Cost (EA)	$8,300	$5,000			
		Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	(LS)	50%	15%	
WATER CONNECTION BY TS1940															
1	Well Site #25	260	$ 13,000	420	$ 5,040	1	$ 1,500	0	$ -	1	$ 8,300	$ 5,000	$ 16,420	$ -	$ 49,260
2	Well Site #31	110	$ 5,500	510	$ 6,120	2	$ 3,000	0	$ -	1	$ 8,300	$ 5,000	$ 13,960	$ -	$ 41,880
3	Well Site #19	890	$ 44,500	1070	$ 12,840	2	$ 3,000	0	$ -	1	$ 8,300	$ 5,000	$ 36,820	$ -	$ 110,460
4	Well Site #7	1505	$ 75,250	1760	$ 21,120	4	$ 6,000	0	$ -	1	$ 8,300	$ 5,000	$ 57,835	$ -	$ 173,505
5	Well Site #21	3390	$ 169,500	3630	$ 43,560	5	$ 7,500	0	$ -	1	$ 8,300	$ 5,000	$ 116,930	$ -	$ 350,790
6	Well Site #17	40	$ 2,000	200	$ 2,400	1	$ 1,500	0	$ -	1	$ 8,300	$ 5,000	$ 9,600	$ -	$ 28,800
7	Well Site #15	165	$ 8,250	325	$ 3,900	1	$ 1,500	0	$ -	1	$ 8,300	$ 5,000	$ 13,475	$ -	$ 40,425
8	Well Site #16	2445	$ 122,250	3720	$ 44,640	3	$ 4,500	0	$ -	1	$ 8,300	$ 5,000	$ 92,345	$ -	$ 277,035
9	Well Site #4	320	$ 16,000	500	$ 6,000	2	$ 3,000	0	$ -	1	$ 8,300	$ 5,000	$ 19,150	$ -	$ 57,450
														Subtotal	**$ 1,129,605**
WATER CONNECTION BY STANDALONE PROJECT															
10	Lindsay Res.	205	$ 10,250	365	$ 4,380	1	$ 1,500	1	$ 8,500	1	$ 8,300	$ 5,000	$ 18,965	$ 8,534	$ 65,429
11	Booster #26	660	$ 33,000	820	$ 9,840	1	$ 1,500	0	$ -	1	$ 8,300	$ 5,000	$ 28,820	$ 12,969	$ 99,429
12	Well Site #28	465	$ 23,250	685	$ 8,220	4	$ 6,000	0	$ -	1	$ 8,300	$ 5,000	$ 25,385	$ 11,423	$ 87,578
13	Freeman Farms Booster	300	$ 15,000	1825	$ 21,900	1	$ 1,500	0	$ -	1	$ 8,300	$ 5,000	$ 25,850	$ 11,633	$ 89,183
14	Well Site #24	1180	$ 59,000	1380	$ 16,560	3	$ 4,500	0	$ -	1	$ 8,300	$ 5,000	$ 46,680	$ 21,006	$ 161,046
15	Well Site #12	1600	$ 80,000	2275	$ 27,300	1	$ 1,500	0	$ -	1	$ 8,300	$ 5,000	$ 61,050	$ 27,473	$ 210,623
16	Well Site #3	1630	$ 81,500	1830	$ 21,960	3	$ 4,500	0	$ -	1	$ 8,300	$ 5,000	$ 60,630	$ 27,284	$ 209,174
17	Booster #21	1880	$ 94,000	3505	$ 42,060	3	$ 4,500	0	$ -	1	$ 8,300	$ 5,000	$ 76,930	$ 34,619	$ 265,409
18	Booster #5	3350	$ 167,500	3590	$ 43,080	5	$ 7,500	0	$ -	1	$ 8,300	$ 5,000	$ 115,690	$ 52,061	$ 399,131
19	Well Site #29	2800	$ 140,000	3060	$ 36,720	6	$ 9,000	0	$ -	1	$ 8,300	$ 5,000	$ 99,510	$ 44,780	$ 343,310
20	Well Site #23	50	$ 2,500	1480	$ 17,760	1	$ 1,500	0	$ -	1	$ 8,300	$ 5,000	$ 17,530	$ 7,889	$ 60,479
21	Well Site #8	650	$ 32,500	830	$ 9,960	2	$ 3,000	0	$ -	1	$ 8,300	$ 5,000	$ 29,380	$ 13,221	$ 101,361
22	Well Site #30	500	$ 25,000	680	$ 8,160	2	$ 3,000	0	$ -	1	$ 8,300	$ 5,000	$ 24,730	$ 11,129	$ 85,319
23	Booster #30	690	$ 34,500	890	$ 10,680	3	$ 4,500	0	$ -	1	$ 8,300	$ 5,000	$ 31,490	$ 14,171	$ 108,641
24	Well Site #20	480	$ 24,000	660	$ 7,920	2	$ 3,000	1	$ 8,500	1	$ 8,300	$ 5,000	$ 28,360	$ 12,762	$ 97,842
25	Well Site #32	500	$ 25,000	680	$ 8,160	2	$ 3,000	1	$ 8,500	1	$ 8,300	$ 5,000	$ 28,980	$ 13,041	$ 99,981
														Subtotal	**$ 2,286,108**
WATER CONNECTION BY FUTURE CIP PROJECT															
26	Well Site #22	125	$ 6,250	285	$ 3,420	1	$ 1,500	1	$ 8,500	1	$ 8,300	$ 5,000	$ 16,485	$ 7,418	$ 56,873
27	Booster #31	670	$ 33,500	870	$ 10,440	3	$ 4,500	1	$ 8,500	1	$ 8,300	$ 5,000	$ 35,120	$ 15,804	$ 121,164
28	Well Site #20	480	$ 24,000	660	$ 7,920	2	$ 3,000	1	$ 8,500	1	$ 8,300	$ 5,000	$ 28,360	$ 12,762	$ 97,842
29	Well Site #14	650	$ 32,500	830	$ 9,960	2	$ 3,000	1	$ 8,500	1	$ 8,300	$ 5,000	$ 33,630	$ 15,134	$ 116,024
30	Well #20 PS	Fiber to be connected by CIP Project WA1230													
														Subtotal	**$ 391,903**
														TOTAL	**$ 3,807,616**

[1]Allowance Consists of Traffic Control, Construction Management, Mobilization, Contingency

[2]Design for water facilities adjacent to TS1940 is included as part of the TS1940 contract

5.3 Wastewater Department Needs

There are currently 30 wastewater water facilities throughout the Town and one facility that is planned for construction. The facilities at Desert Sky Park, Gilbert Regional Park, South Area Service Center, and South Area Recharge Center are currently connected to fiber. Moreover, Candlewood Lift Station is programmed to be connected to fiber via Town Project WW0700. The remaining 25 facilities are either connected to the wastewater SCADA System hosted in the Reservoir 3 Reuse Site or not connected at all and are manually switched on/off. The goal is to transition the communication to Town owned fiber optic cable and keep the cellular communications as a backup for redundancy. See table 5 for a list of wastewater facilities and the connection priorities as provided by the Town. For a graphical depiction of the facilities that are adjacent to TS1940 Fiber, programmed CIP fiber, or existing fiber, see Figures 10-12. Figure 13 shows a combined map of said facilities.

Table 5: List of Wastewater Facilities

Priority No.	Well Site	Address/Location	Fiber Connectivity By:		
			TS1940	CIP	Standalone
1	Res 3	4376 S. Greenfield Rd.	☐	☐	☑
2	North Area Service Center (NASC)	900 E. Juniper Ave.	☐	☐	☑
3	Gilbert Commons L/S	2595 S. Gilbert Rd.	☑	☐	☐
4	Crossroads L/S	2072 S. Greenfield Rd.	☐	☐	☑
5	Layton Lakes L/S	4732 S. Lindsey Rd.	☑	☐	☐
6	Turner Ranch L/S	4352 E. Guadalupe Rd.	☑	☐	☐
7	Islands L/S	1990 W. Elliot Rd.	☐	☐	☑
8	Res 1	2639 E. Elliot Rd.	☑	☐	☐
9	McQueen Park	490 N. Horne St.	☐	☐	☑
10	Neely L/S	400 W. Guadalupe Rd.	☑	☐	☐
11	San Tan L/S	3345 South Higley Rd.	☑	☐	☐
12	Rancho Del Verde L/S	395 W. Ray Rd.	☑	☐	☐
13	Spring Meadows L/S	429 E. Saratoga St.	☐	☐	☑
14	Western Skies L/S	1091 S. Sandstone St.	☐	☐	☑
15	Commerce L/S	410 N. Neely	☑	☐	☐
16	Baseline L/S	2679 E. Baseline Rd.	☐	☑	☐
17	Freeman Farms L/S	6069 S. Marion Ct.	☐	☐	☑
18	Fiesta Tech L/S	1525 N. Fiesta Blvd.	☑	☐	☐
19	Storm Station	1484 S. San Tan Village Pkwy.	☐	☐	☑
20	Freestone Lake	1045 E. Juniper Ave.	☐	☐	☑
21	Crossroads Lake	2155 E. Knox Rd.	☐	☐	☑
22	Muni 1 Lake	945 S. Gilbert Rd.	☐	☐	☑
23	Neely WWRF	402 N. Neely St.	☑	☐	☐
24	GYSA (Soccer Fields L/S)	4282 S. Greenfield Rd.	☐	☐	☑
25a	Desert Sky Park	6624 S Power Rd.	currently on fiber		
25b	Desert Sky Park – Lake	6624 S. Power Rd.	currently on fiber		
25c	Desert Sky Park – L/S	6624 S Power Rd.	currently on fiber		
26a	Gilbert Regional Well 1	3005 E. Queen Creek Rd.	currently on fiber		
26b	Gilbert Regional Well 2	3005 E. Queen Creek Rd.	currently on fiber		
26c	Gilbert Regional Park Lake	3005 E. Queen Creek Rd.	currently on fiber		
27	SASC	4760 S. Greenfield Rd.	currently on fiber		
28	SARC	S. Higley Rd.	currently on fiber		
29	Cactus Yards	(FUTURE LOCATION)	☐	☐	☑
30	Candlewood L/S	407 S. Cooper Rd.	fiber to be installed via WW0700		
31	Recker Control Valve	Southwest Corner of Recker and Warner	☐	☐	☑

Figure 10: Wastewater Facilities Adjacent to TS1940 Fiber

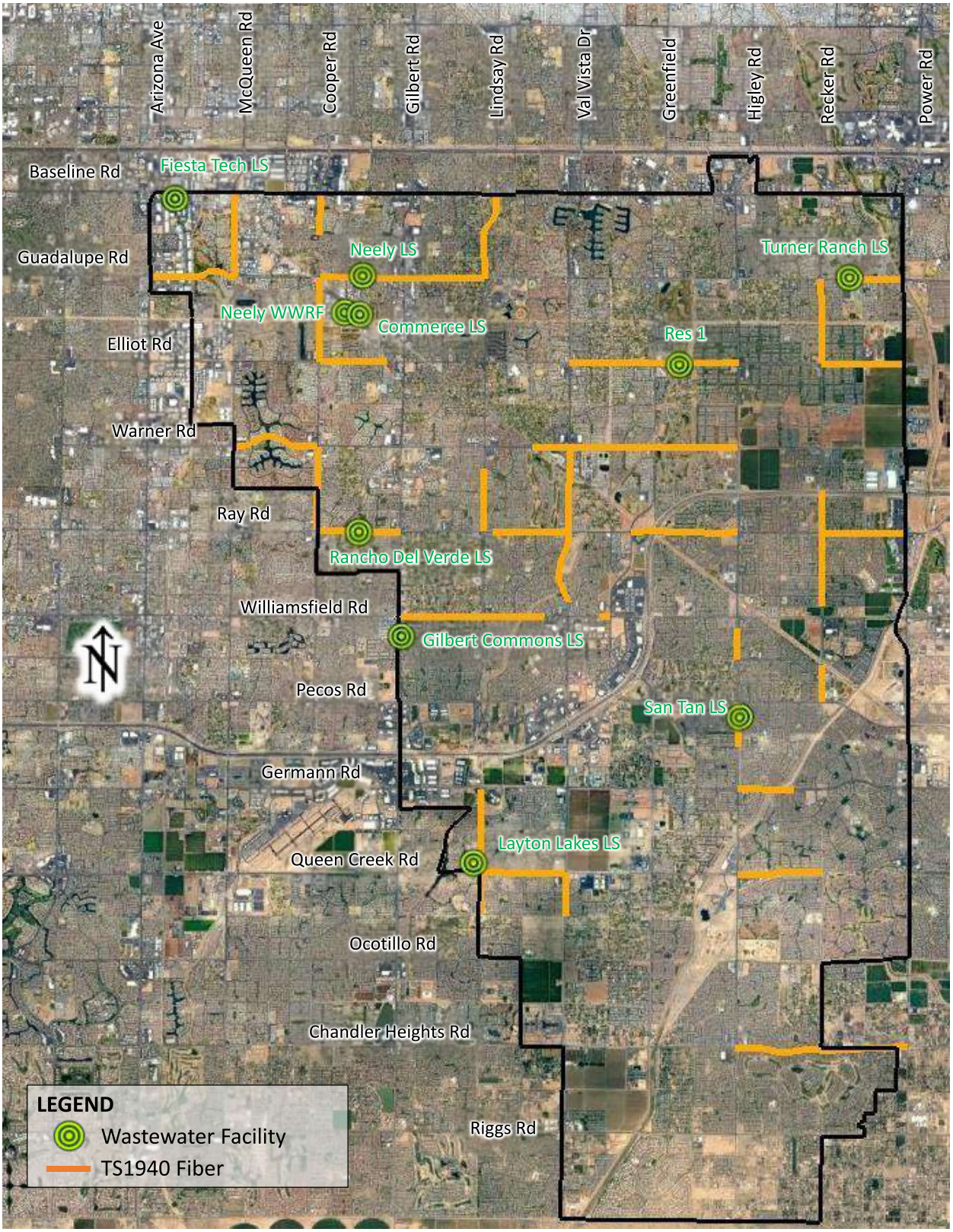


Figure 11: Wastewater Facilities Adjacent to Programmed CIP Fiber

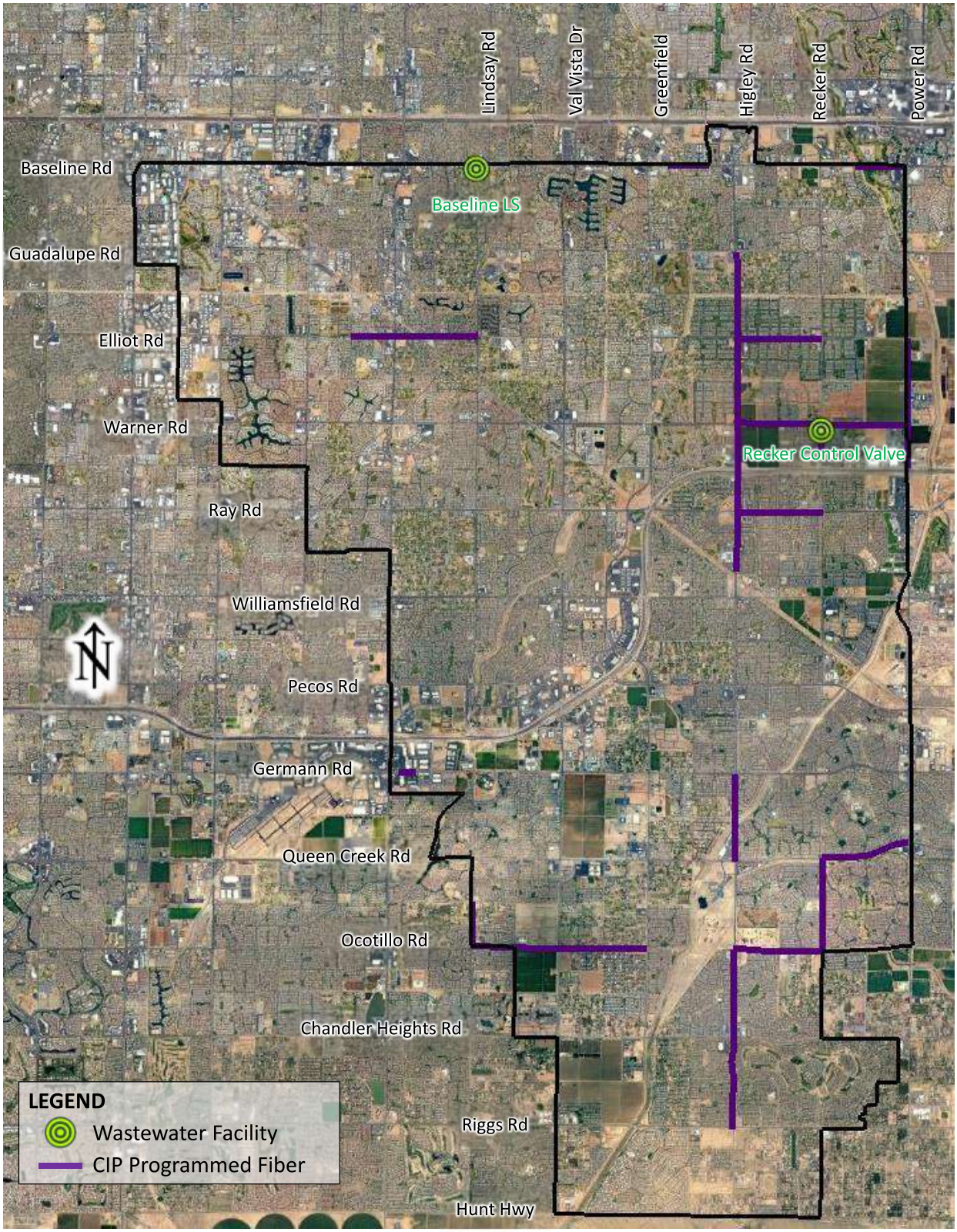


Figure 12: Wastewater Facilities Adjacent to Existing Fiber

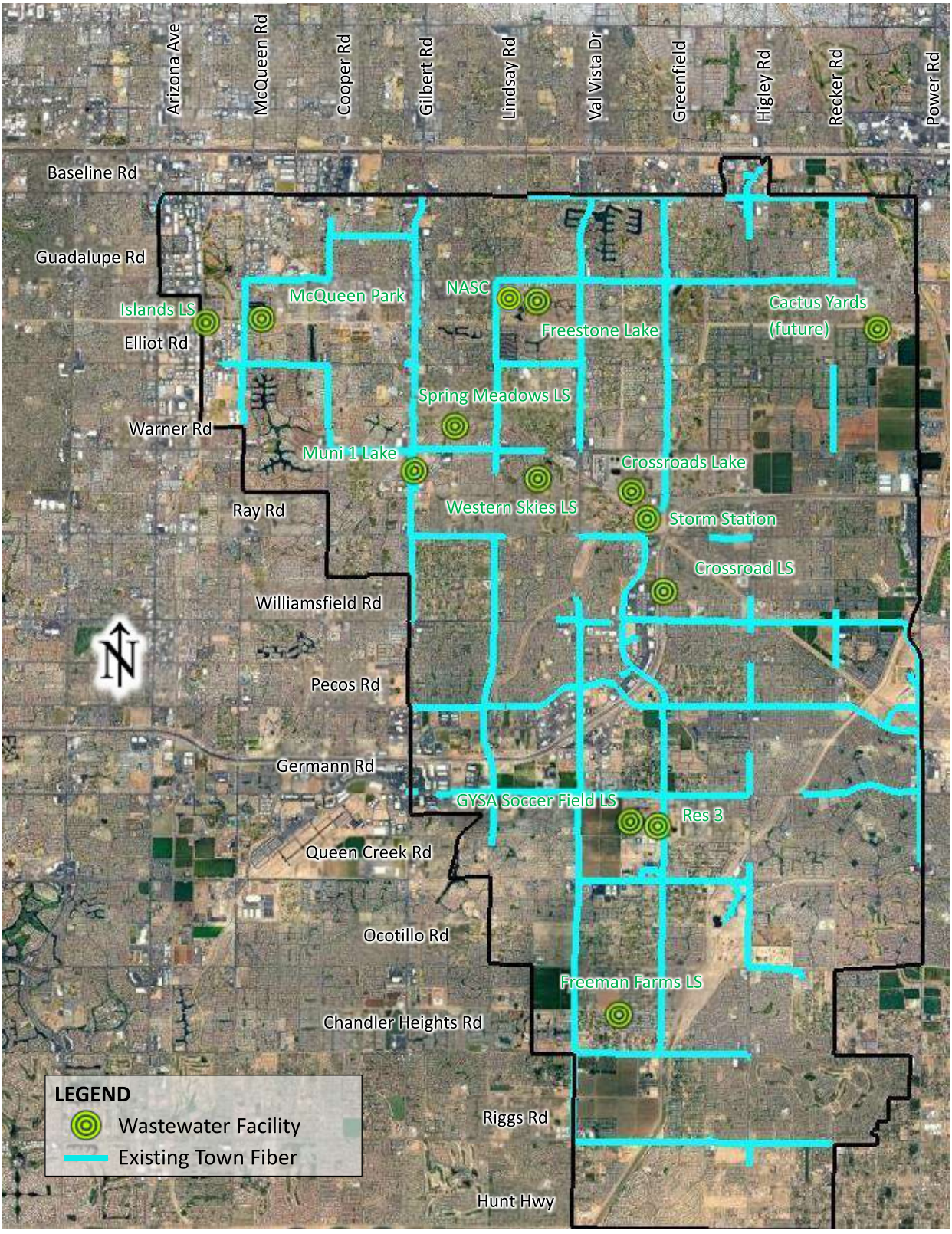
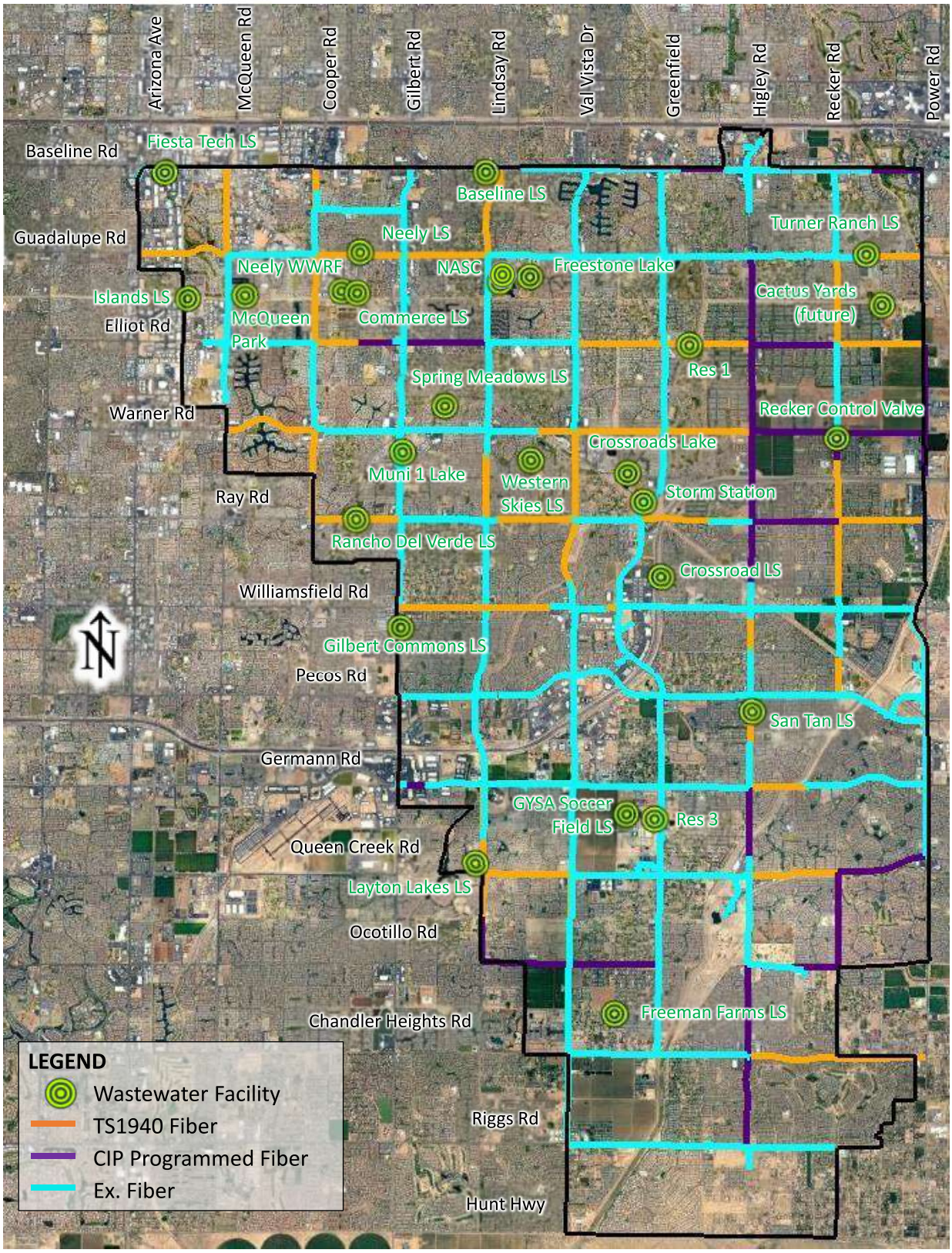


Figure 13: Wastewater Facilities and Arterial Fiber



15% itemized cost estimates for each wastewater connection have been prepared and presented in table 6. The costs consider conduit routing, fiber, splicing, approximate number of pull boxes, and communication end equipment required for fiber connectivity to the water controllers. It should be noted that costs do not include upgrading/installing Programmable Logic Controllers (PLC) or other cabinet equipment. Preliminary alignments have been included in the project Google Earth (.kmz) file, which has been shared with the project team.

Table 6: Wastewater Facilities Connection – 15% Cost Estimate

No.	Location	Conduit (1-2")		12 SMFO with Gator Patch		No. 7 Pull Box		No. 9 Pull Box		Layer 2 Switch w/ Jumpers & Mounting		Splicing	Allowance[1]	Eng. Design[2]	Extended Cost
		Cost (LF)	$ 50	Cost (LF)	$ 12	Cost (EA)	$ 1,500	Cost (EA)	$ 8,500	Cost (EA)	$ 8,300	$5,000			
		Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	(LS)	50%	15%	
WASTEWATER CONNECTION BY TS1940															
1	Neely L/S	100	$ 5,000	260	$ 3,120	1	$ 1,500	-	$ -	-	$ -	$ 5,000	$ 7,310	$ -	$ 21,930
2	Rancho L/S ****	60	$ 3,000	200	$ 2,400	-	$ -	-	$ -	1	$ 8,300	$ 5,000	$ 9,350	$ -	$ 28,050
3	Commerce L/S*/****	4200	$ 210,000	4420	$ 53,040	4	$ 6,000	-	$ -	1	$ 8,300	$ 5,000	$ 141,170	$ -	$ 423,510
4	San Tan L/S	100	$ 5,000	240	$ 2,880	-	$ -	-	$ -	-	$ -	$ 5,000	$ 6,440	$ -	$ 19,320
5	Gilbert Commons L/S	1300	$ 65,000	1480	$ 17,760	2	$ 3,000	-	$ -	-	$ -	$ 5,000	$ 45,380	$ -	$ 136,140
6	Layton Lakes L/S	550	$ 27,500	730	$ 8,760	2	$ 3,000	-	$ -	-	$ -	$ 5,000	$ 22,130	$ -	$ 66,390
7	Turner Ranch L/S	50	$ 2,500	190	$ 2,280	-	$ -	-	$ -	-	$ -	$ 5,000	$ 4,890	$ -	$ 14,670
8	Fiesta Tech L/S	5300	$ 265,000	5560	$ 66,720	6	$ 9,000	-	$ -	-	$ -	$ 5,000	$ 172,860	$ -	$ 518,580
9	Res1	200	$ 10,000	340	$ 4,080	-	$ -	-	$ -	-	$ -	$ 5,000	$ 9,540	$ -	$ 28,620
10	Neely WWRF*	3000	$ 90,000	3220	$ 38,640	4	$ 6,000	-	$ -	-	$ -	$ 5,000	$ 69,820	$ -	$ 209,460
														Subtotal	**$ 1,466,670**
WASTEWATER CONNECTION BY STANDALONE PROJECT															
11	NASC***	950	$ 47,500	1630	$ 19,560	2	$ 3,000	-	$ -	-	$ -	$ 5,000	$ 37,530	$ 16,889	$ 129,479
12	Spring Meadows L/S	4000	$ 200,000	4240	$ 50,880	5	$ 7,500	-	$ -	1	$ 8,300	$ 5,000	$ 135,840	$ 61,128	$ 468,648
13	Islands L/S	3100	$ 155,000	3340	$ 40,080	5	$ 7,500	-	$ -	-	$ -	$ 5,000	$ 103,790	$ 46,706	$ 358,076
14	Crossroads L/S	3200	$ 160,000	1905	$ 22,860	5	$ 7,500	-	$ -	-	$ -	$ 5,000	$ 97,680	$ 43,956	$ 336,996
15	GYSA L/S**/****	4100	$ 205,000	4340	$ 52,080	5	$ 7,500	-	$ -	1	$ 8,300	$ 5,000	$ 138,940	$ 62,523	$ 479,343
16	Storm Station	2200	$ 110,000	2895	$ 34,740	2	$ 3,000	-	$ -	1	$ 8,300	$ 5,000	$ 80,520	$ 36,234	$ 277,794
17	Freeman Farms L/S	5500	$ 275,000	5700	$ 68,400	3	$ 4,500	-	$ -	-	$ -	$ 5,000	$ 176,450	$ 79,403	$ 608,753
18	Res3**	2400	$ 120,000	4025	$ 48,300	3	$ 4,500	-	$ -	-	$ -	$ 5,000	$ 88,900	$ 40,005	$ 306,705
19	Freestone Lake***	3200	$ 160,000	3440	$ 41,280	5	$ 7,500	-	$ -	-	$ -	$ 5,000	$ 106,890	$ 48,101	$ 368,771
20	Crossroads Lake	2100	$ 105,000	2300	$ 27,600	3	$ 4,500	-	$ -	-	$ -	$ 5,000	$ 71,050	$ 31,973	$ 245,123
21	Muni 1 Lake	500	$ 25,000	1950	$ 23,400	2	$ 3,000	-	$ -	-	$ -	$ 5,000	$ 28,200	$ 12,690	$ 97,290
22	McQueen Park	250	$ 12,500	430	$ 5,160	2	$ 3,000	-	$ -	-	$ -	$ 5,000	$ 12,830	$ 5,774	$ 44,264
23	SARC	2800	$ 140,000	3000	$ 36,000	3	$ 4,500	-	$ -	-	$ -	$ 5,000	$ 92,750	$ 41,738	$ 319,988
24	Western Skies L/S	1800	$ 90,000	1980	$ 23,760	2	$ 3,000	-	$ -	1	$ 8,300	$ 5,000	$ 65,030	$ 29,264	$ 224,354
25	Cactus Yards	1000	$ 50,000	1180	$ 14,160	2	$ 3,000	-	$ -	1	$ 8,300	$ 5,000	$ 40,230	$ 18,104	$ 138,794
														Subtotal	**$ 4,404,374**
WASTEWATER CONNECTION BY FUTURE CIP PROJECT															
26	Baseline L/S	1200	$ 60,000	1250	$ 15,000	1	$ 1,500	1	$ 8,500	1	$ 8,300	$ 5,000	$ 49,150	$ 22,118	$ 169,568
27	Recker Control Valve	500	$ 25,000	660	$ 7,920	1	$ 1,500	-	$ -	0	$ -	$ 5,000	$ 19,710	$ 8,870	$ 68,000
														Subtotal	**$ 169,568**
														TOTAL	**$ 6,040,611**

[1]Allowance Consists of Traffic Control, Construction Management, Mobilization, Contingency

[2]Design for wastewater facilities adjacent to TS1940 is included as part of the TS1940 contract

*Commerce L/S and Neely WWRF share 3000 ft of fiber/conduit path - cost will reduce for whichever site gets connected secon

** GYSA L/S and Res 3 share 2300 ft of fiber/conduit path - cost will reduce for whichever site gets connected secon

*** Freestone Lake and NASC Share 1200 ft of fiber/conduit path - cost will reduce for whichever site gets connected second

**** Rancho Del Verde, GYSA, and Commerce L/S do not have PLC

5.4 Stormwater Needs

There are currently four stormwater facilities throughout the Town, two of which (Village II and Freestone Pump Stations) are programmed for upgrading in the next 3-5 years. Currently, the Stormwater Department does not have their own SCADA system. With the exception of the Crossroads pump station, the equipment at the other three locations are manually operated during storm events. Crossroads pump station has a PLC and other cabinet equipment. However, it is connected to the wastewater SCADA System. Through discussion with the stormwater leads, the department has plans to add a SCADA system in the next 8-10 years and connect stormwater pump stations to the stormwater SCADA System.

See table 7 for a list of stormwater facilities and the connection priorities as provided by the Town. For a graphical depiction of the facilities that are adjacent to TS1940 Fiber, programmed CIP fiber, or existing fiber, see Figures 14-16. Figure 17 shows a combined map. As shown in table 7 and Figure 16, the four stormwater facilities are adjacent to existing fiber.

Table 7: List of Stormwater Facilities

Priority No.	Stormwater Pump Station	Address/Location	Fiber Connectivity By:		
			TS1940	CIP	Standalone
1	Crossroads P/S	San Tan Village Parkway/North of Ray Rd	☐	☐	☑
2	Freestone P/S	Lindsay Rd between Guadalupe & Elliot Rd	☐	☐	☑
3	Vaughn P/S	Vaughn St/West of Gilbert Rd	☐	☐	☑
4	Village II P/S	SRP Western Canal/East of Gilbert Rd	☐	☐	☑

Figure 14: Stormwater Facilities Adjacent to TS1940 Fiber

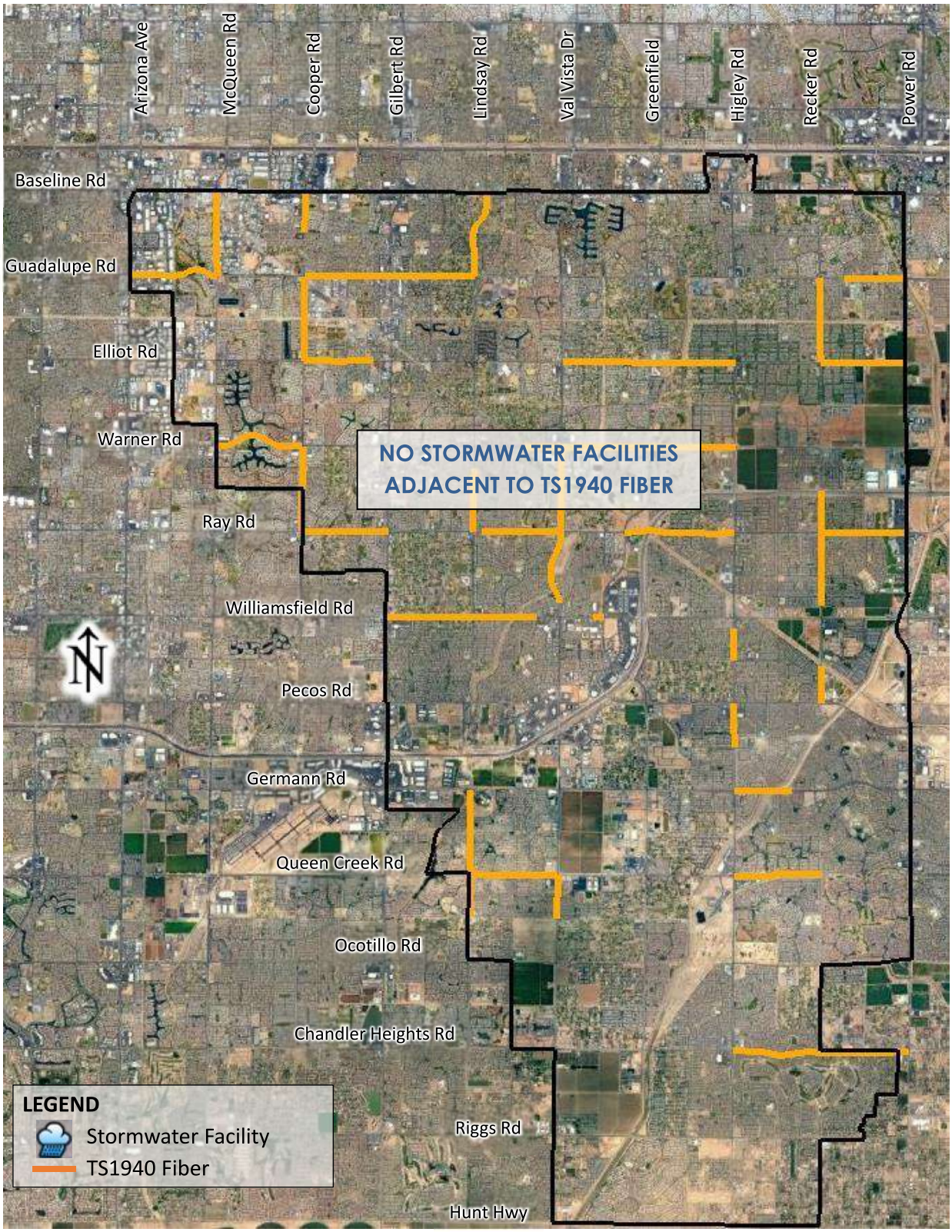


Figure 15: Stormwater Facilities Adjacent to Programmed CIP Fiber

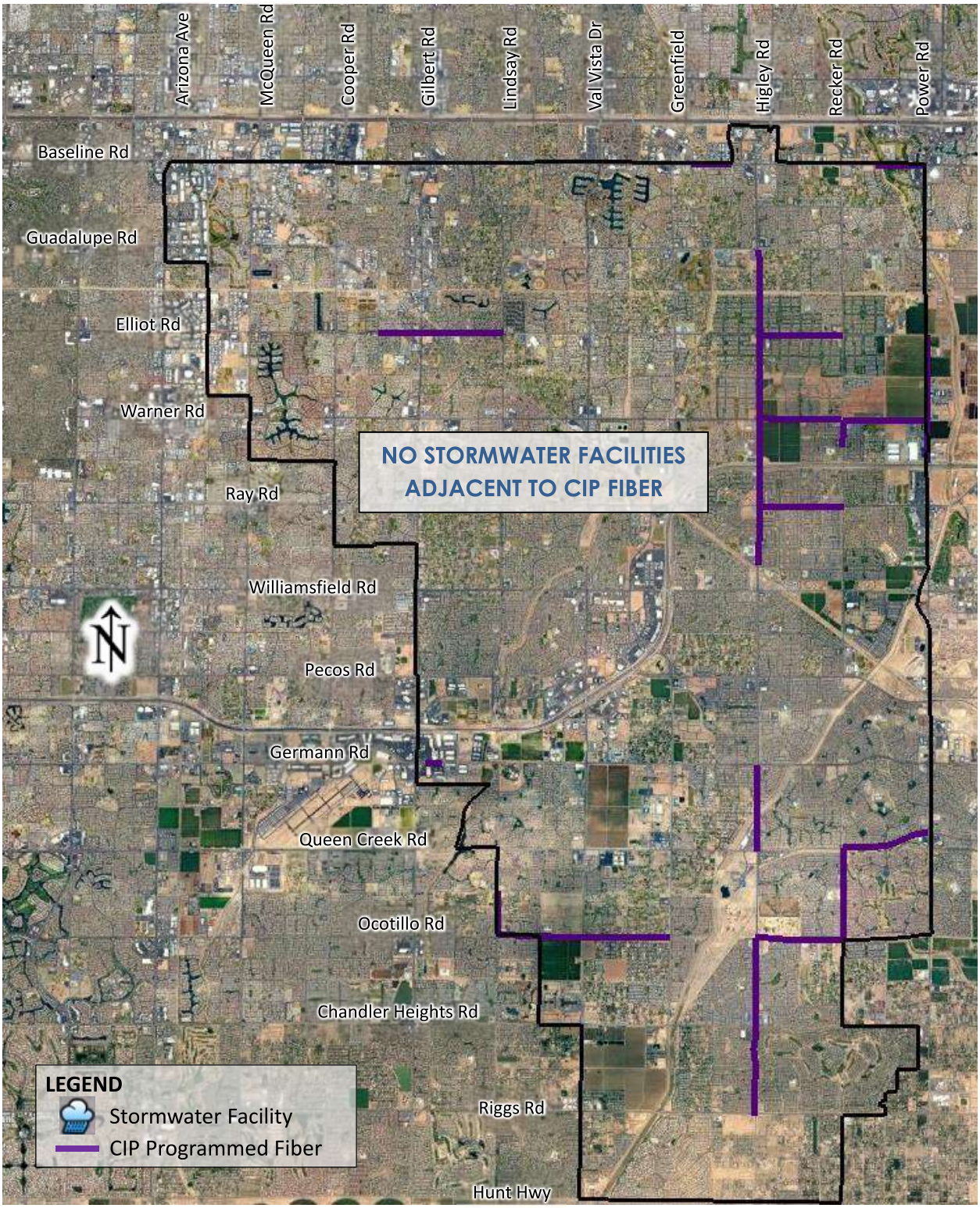


Figure 16: Stormwater Facilities Adjacent to Existing Fiber

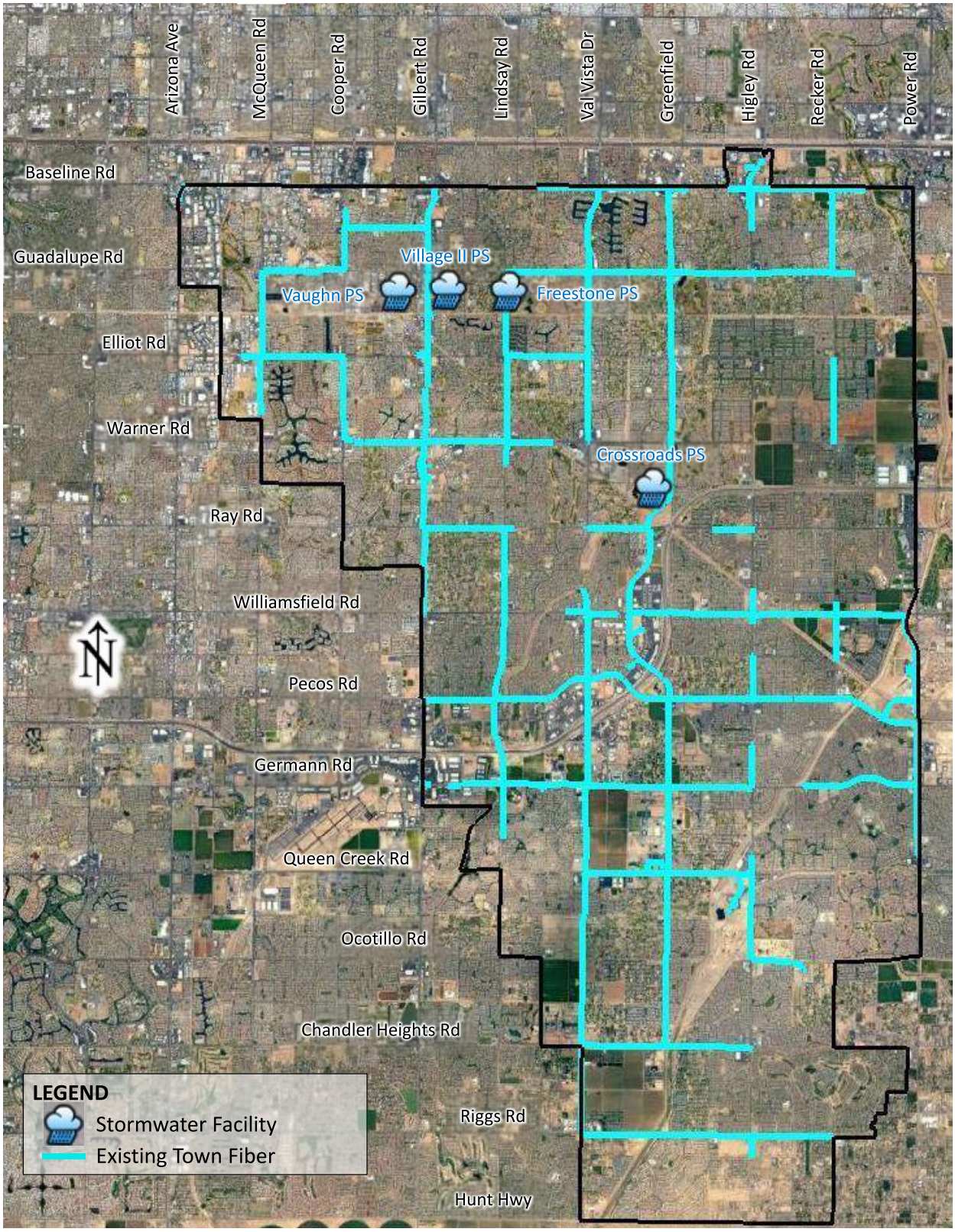
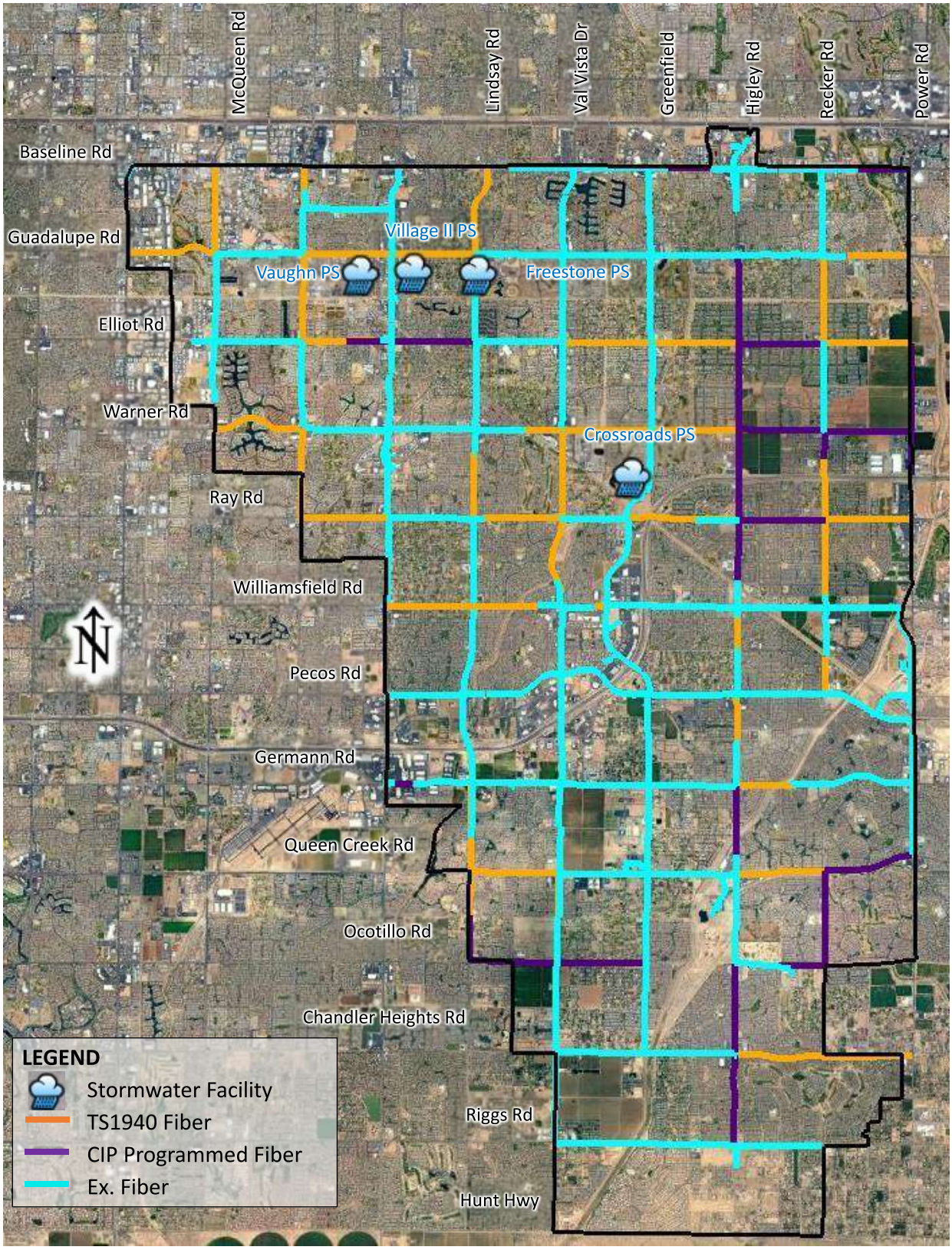


Figure 17: Stormwater Facilities and Arterial Fiber



15% itemized cost estimates for each stormwater connection have been prepared and presented in table 8. The costs consider conduit routing, fiber, splicing, approximate number of pull boxes, and communication end equipment required for fiber connectivity to the future controllers. It should be noted that costs do not include upgrading/installing Programmable Logic Controllers (PLC), other cabinet equipment, or the SCADA system. Preliminary alignments have been included in the project Google Earth (.kmz) file, which has been shared with the project team.

Table 8: Stormwater Facilities Connection – 15% Cost Estimate

No.	Location	Conduit (1-2")		12 SMFO with Gator Patch		No. 7 Pull Box		No. 9 Pull Box		Layer 2 Switch w/ Jumpers & Mounting		Splicing	Allowance[1]	Eng. Design[2]	Extended Cost
		Cost (LF)	$ 50	Cost (LF)	$ 12	Cost (EA)	$1,500	Cost (EA)	$8,500	Cost (EA)	$8,300	$5,000			
		Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	(LS)	50%	15%	
STORMWATER CONNECTION BY TS1940															
There are no storm water facilities proposed to be desgined in this category															
														Subtotal	**$ -**
STORMWATER CONNECTION BY STANDALONE PROJECT															
1	Crossroads	2116	$ 105,800	2166	$ 25,992	3	$ 4,500	0	$ -	1	$ 8,300	$ 5,000	$ 74,796	$ 33,658	$ 258,046
2	Freestone	187	$ 9,350	237	$ 2,844	1	$ 1,500	0	$ -	1	$ 8,300	$ 5,000	$ 13,497	$ 6,074	$ 46,565
3	Vaughn	2330	$ 116,500	2448	$ 29,376	3	$ 4,500	0	$ -	1	$ 8,300	$ 5,000	$ 81,838	$ 36,827	$ 282,341
4	Village II	1721	$ 86,050	1771	$ 21,252	3	$ 4,500	0	$ -	1	$ 8,300	$ 5,000	$ 62,551	$ 28,148	$ 215,801
														Subtotal	**$ 802,753**
STORMWATER CONNECTION BY FUTURE CIP PROJECT															
There are no storm water facilities proposed to be desgined in this category															
														Subtotal	**$ -**
													TOTAL		**$ 802,753**

[1]Allowance Consists of Traffic Control, Construction Management, Mobilization, Contingency

[2]Design for stormwater facilities adjacent to TS1940 is included as part of the TS1940 contract

5.5 Information Technology Supported Facilities

The Town IT department currently supports networking for the majority of Town facilities except for the traffic signal, water, wastewater, and stormwater facilities. As such, there are currently 35 facilities throughout the Town that are supported by IT. Out of these, 22 facilities are connected to the Town fiber backbone, while the remaining are communicating via Cox or Lumen cable modems. The goal is to transition the communications to Town owned fiber optic cable. See table 9 for a list of IT supported facilities and the connection priorities as provided by the Town. For a graphical depiction of the facilities that are adjacent to TS1940 Fiber, programmed CIP fiber, or existing fiber, see Figures 18-20. Figure 21 is a combined map.

Table 9: Town Facilities Supported by IT Department

Priority No.	Well Site	Fiber Connectivity By:		
		TS1940	CIP	Standalone
1	Gilbert Community Center	to be connected by PR1336 (ongoing)		
2	McQueen Park Activity Center	to be connected by PR1336 (ongoing)		
3	Cactus Yards	to be connected by PR1336 (ongoing)		
4	Heritage Center	to be connected by PR1336 (ongoing)		
5	Fire Station 6	☐	☑	☐
6	Police Operations	☑	☐	☐
7	Neely Water Treatment Plant	☑	☐	☐
8	Greenfield Pool	☐	☐	☑
9	Williams Pool	☐	☑	☐
10	Mesquite Pool	☐	☐	☑
11	Vaughn Parking Garage	to be connected (ongoing)		
12	University Building	to be connected (ongoing)		
13	Perry Pool	ongoing fiber connection by Town		
14	Freestone Recreation Center	currently on Multi-Mode		
15	Fire Station 1	currently on fiber		
16	Fire Station 2	currently on fiber		
17	Fire Station 3	currently on fiber		
18	Fire Station 4	currently on fiber		
19	Fire Station 5	currently on fiber		
20	Fire Station 7	currently on fiber		
21	Fire Station 8	currently on fiber		
22	Fire Station 9	currently on fiber		
23	Fire Station 10	currently on fiber		
24	Fire Station 11	currently on fiber		
25	Municipal Building 1	currently on fiber		
26	Municipal Building 2	currently on fiber		
27	Gilbert Regional Park	currently on fiber		
28	Desert Sky Park	currently on fiber		
29	Southeast Regional Library	currently on fiber		
30	North Water Treatment Plant	currently on fiber		
31	Santan Water Treatment Plant	currently on fiber		
32	Public Works North	currently on fiber		
33	South Area Service Center	currently on fiber		
34	Hearne Garage	currently on fiber		
35	Police Station Compound	currently on fiber		

Figure 18: IT Facilities Adjacent to TS1940 Fiber

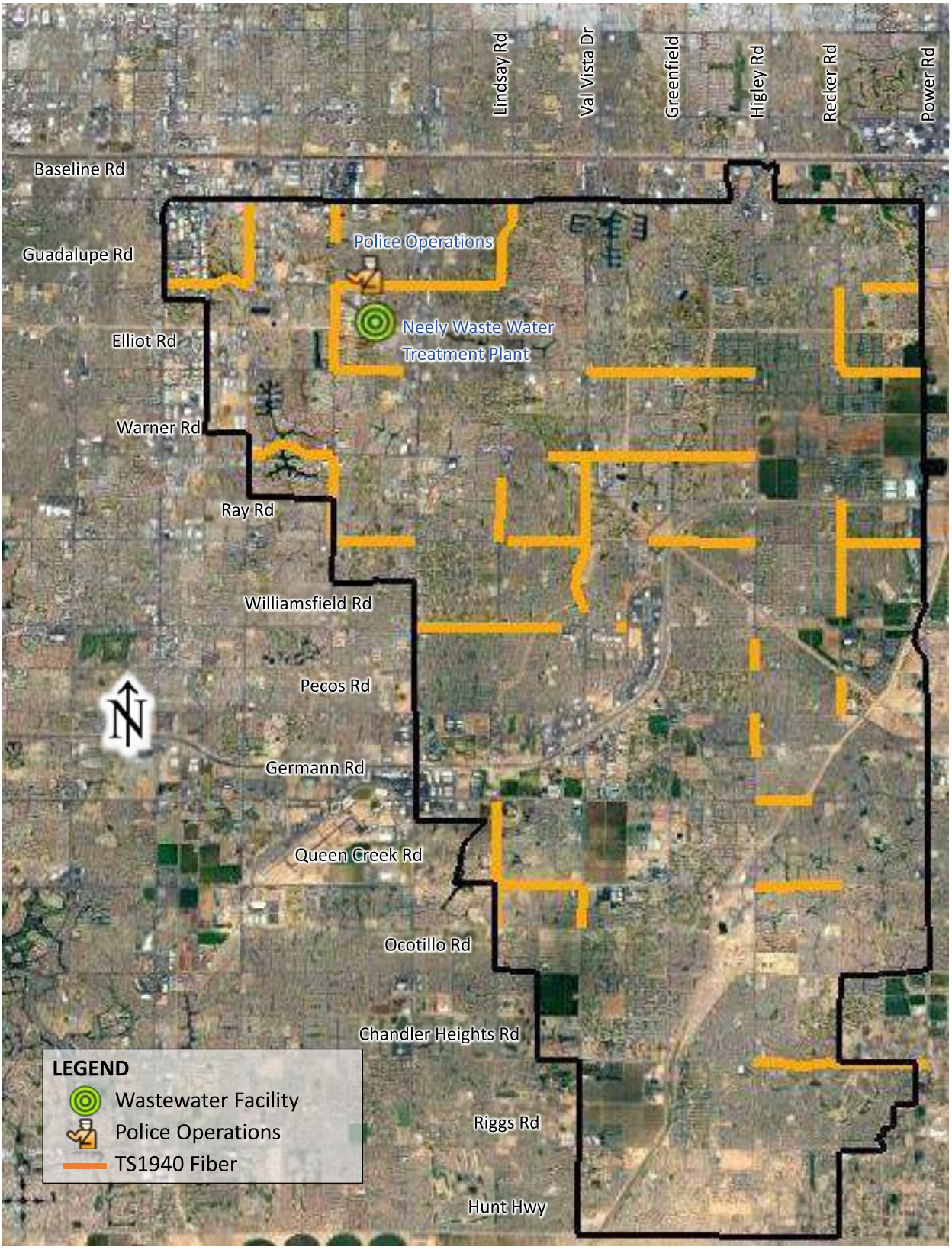


Figure 19: IT Facilities Adjacent to Programmed CIP Fiber

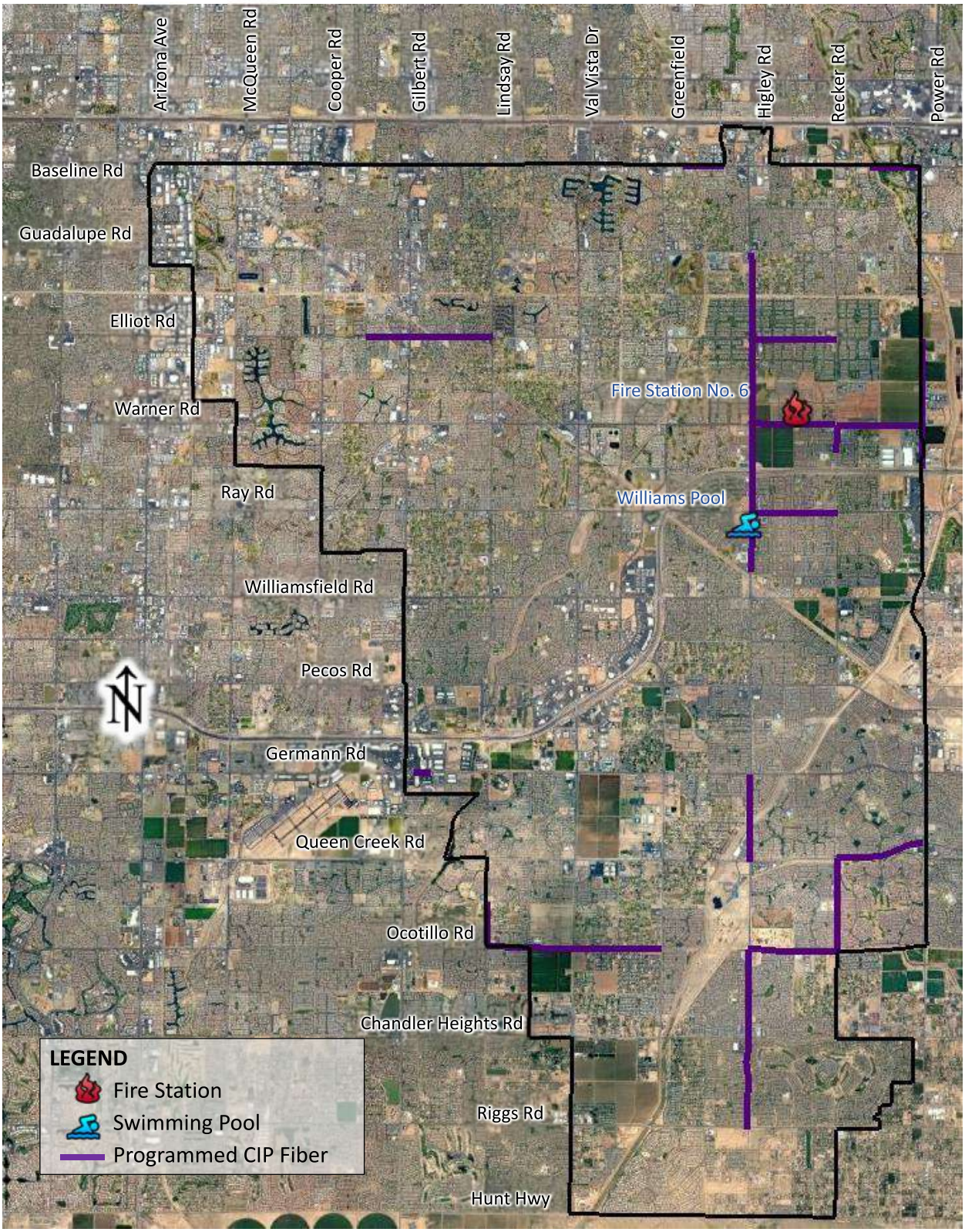


Figure 20: IT Facilities Adjacent to Existing Fiber

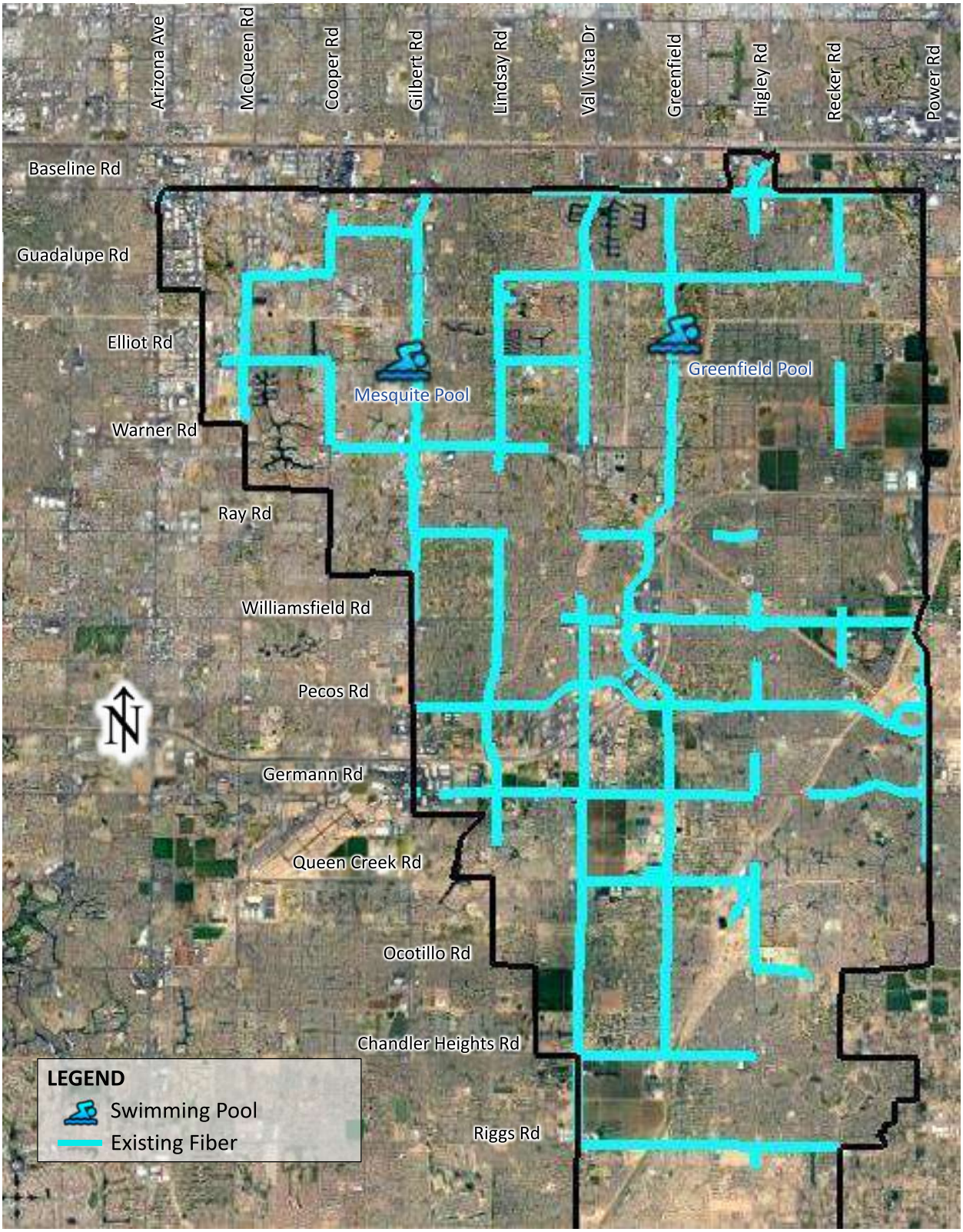
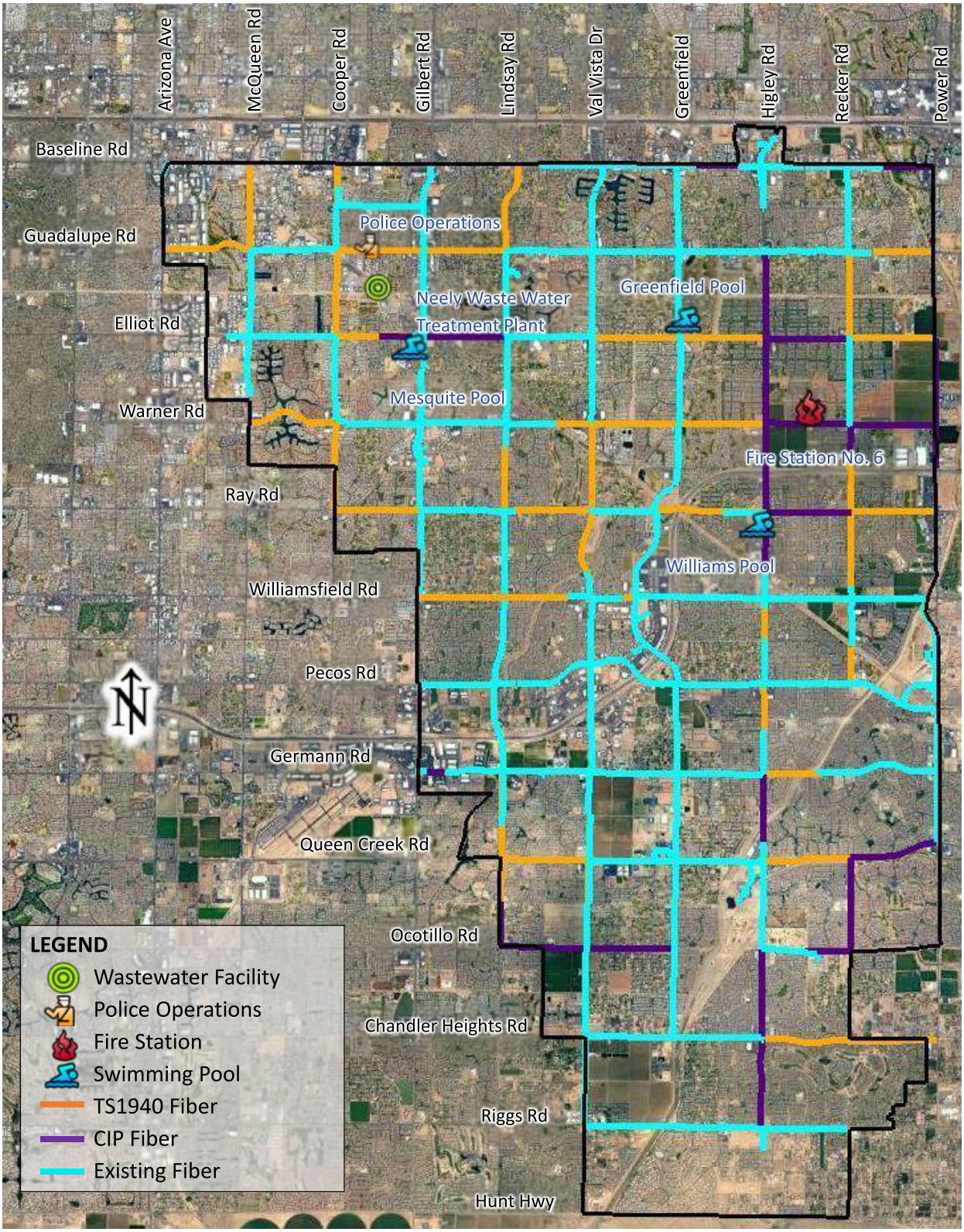


Figure 21: IT Facilities and Arterial Fiber



15% itemized cost estimates for each IT supported facilities connection have been prepared and presented in table 10. The costs consider conduit routing, fiber, splicing, approximate number of pull boxes, and communication end equipment required for fiber connectivity to the MDF rooms. It should be noted that costs do not include upgrading/installing switches or other room equipment. Preliminary alignments have been included in the project Google Earth (.kmz) file, which has been shared with the project team.

Table 10: IT Supported Facilities Connection – 15% Cost Estimate

No.	Location	Conduit (1-2")		12 SMFO w/ 12-Port LIU		No. 7 Pull Box		No. 9 Pull Box		Layer 2 Switch w/ Jumper Cables & Mounting		Splicing	Allowance[1]	Eng. Design[2]	Extended Cost
		Cost/LF	$ 50	Cost/LF	$ 12	Cost/EA	$ 1,500	Cost/EA	$8,500	Cost/EA	$8,300	$5,000			
		Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	(LS)	50%	15%	
IT FACILITY CONNECTIONS BY TS1940															
1	Police Operations	1480	$ 74,000	1660	$ 19,920	2	$ 3,000	0	$ -	0	$ -	$ 5,000	$ 50,960	$ -	$ 152,880
2	Neely WWRF	3000	$ 150,000	3220	$ 38,640	4	$ 6,000	-	$ -	-	$ -	$ 5,000	$ 99,820	$ -	$ 299,460
														Subtotal	**$ 452,340**
IT FACILITY CONNECTIONS BY STANDALONE PROJECT															
3	Greenfield Pool	225	$ 11,250	385	$ 4,620	1	$ 1,500	0	$ -	1	$ 8,300	$ 5,000	$ 15,335	$ 6,901	$ 52,906
4	Mesquite Aquatic Center	1307	$ 65,350	1467	$ 17,604	1	$ 1,500	0	$ -	1	$ 8,300	$ 5,000	$ 48,877	$ 21,995	$ 168,626
														Subtotal	**$ 221,531**
IT FACILITY CONNECTIONS BY FUTURE CIP PROJECT															
5	Fire Station #6	485	$ 24,250	645	$ 7,740	1	$ 1,500	0	$ -	1	$ 8,300	$ 5,000	$ 23,395	$ 10,528	$ 80,713
6	Williams Field Pool	737	$ 36,850	897	$ 10,764	1	$ 1,500	0	$ -	1	$ 8,300	$ 5,000	$ 31,207	$ 14,043	$ 107,664
														Subtotal	**$ 188,377**
														TOTAL	**$ 862,248**

[1]Allowance Consists of Traffic Control, Construction Management, Mobilization, Contingency

[2]Design for IT facilities adjacent to TS1940 is included as part of the TS1940 contract

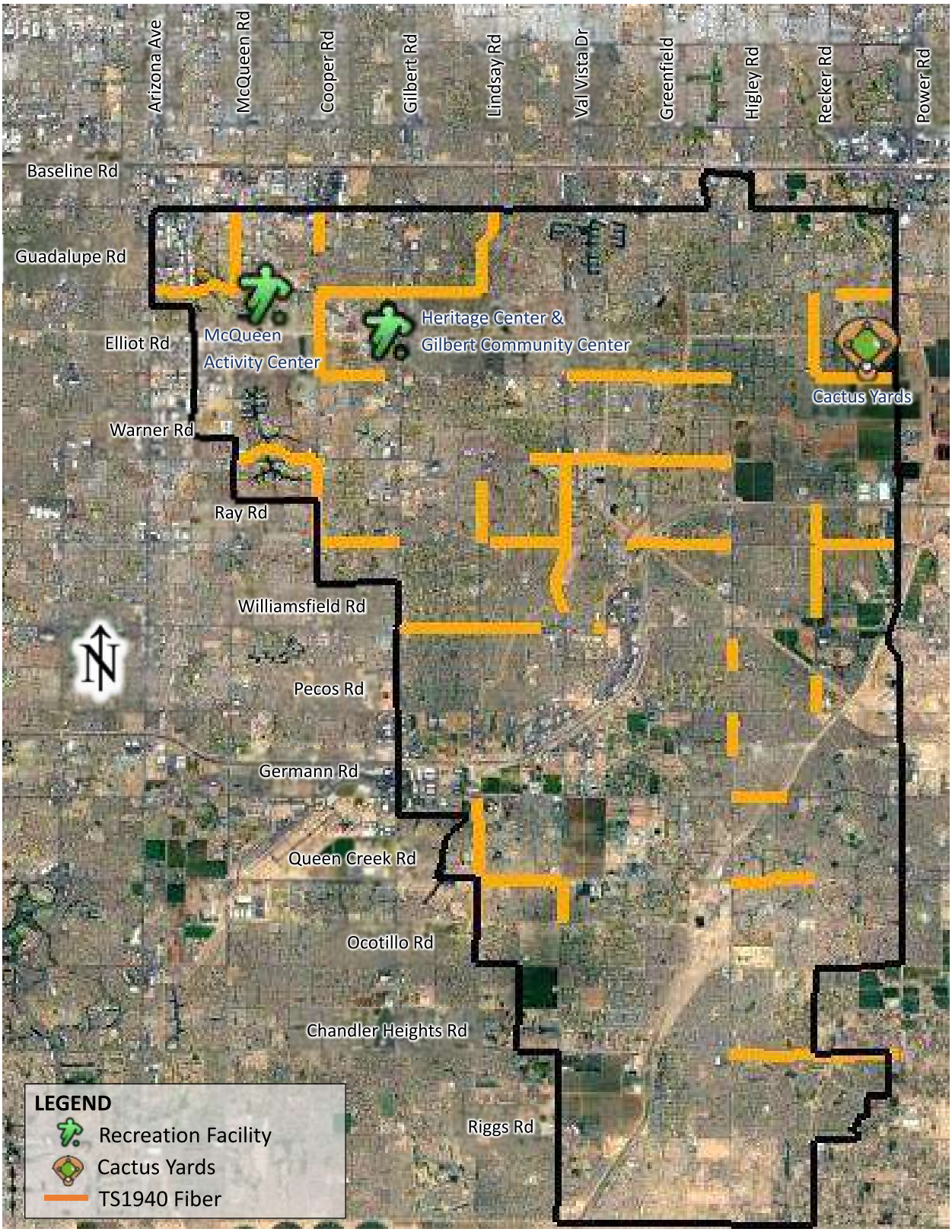
5.6 PR1336 Parks Facility Fiber Connection

PR1336 Parks Facility Fiber Connection is a parks project to design and install fiber optic branch connections to the following four parks and recreation facilities:

- McQueen Activity Center
- Gilbert Community Center
- Heritage Center
- Cactus Yards

PR1336 is currently programmed in the CIP and will be implemented concurrently to TS1940 arterial fiber installation. For a graphical depiction of the location of these facilities see Figure 22.

Figure 22: PR1336 Facilities



15% itemized cost estimates for each PR1336 connection have been prepared and presented in table 11. The costs consider conduit routing, fiber, splicing, approximate number of pull boxes, and communication end equipment required for fiber connectivity to the MDF rooms. It should be noted that costs do not include upgrading/installing switches or other room equipment. Preliminary alignments have been included in the project Google Earth (.kmz) file, which has been shared with the project team.

Table 11: PR1336 Facilities – 15% Cost Estimate

No.	Location	Conduit (1-2")		ISP Conduit Routing (EMT + HDPE pipe)		12 SMFO w/ 12-Port LIU		No. 7 Pull Box		Layer 2 Switch w/ Jumper Cables & Mounting		Splicing	Allowance[1]	Eng. Design[2]	Extended Cost
		Cost/LF	$ 50	Cost/LF	$ 75	Cost/LF	$ 12	Cost/EA	$ 1,500	Cost/EA	$8,300	$5,000			
		Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	(LS)	50%	15%	
IT FACILITY CONNECTIONS BY TS1940															
1	McQueen Activity Center	200	$ 10,000	300	$ 22,500	680	$ 8,160	2	$ 3,000	-	$ -	$ 5,000	$ 24,330	$ -	$ 72,990
2	Heritage Center	650	$ 32,500	100	$ 7,500	930	$ 11,160	2	$ 3,000	-	$ -	$ 5,000	$ 25,830	$ -	$ 84,990
3	Community Center	275	$ 13,750	100	$ 7,500	455	$ 5,460	2	$ 3,000	-	$ -	$ 5,000	$ 13,605	$ -	$ 48,315
4	Cactus Yards	2300	$ 115,000	100	$ 7,500	2620	$ 31,440	4	$ 6,000	-	$ -	$ 5,000	$ 78,720	$ -	$ 243,660
														TOTAL	$ 449,955

[1]Allowance Consists of Traffic Control, Construction Management, and Mobilization

[2]Design for IT facilities adjacent to TS1940 is included as part of the TS1940 contract

5.7 Town Manager's Office

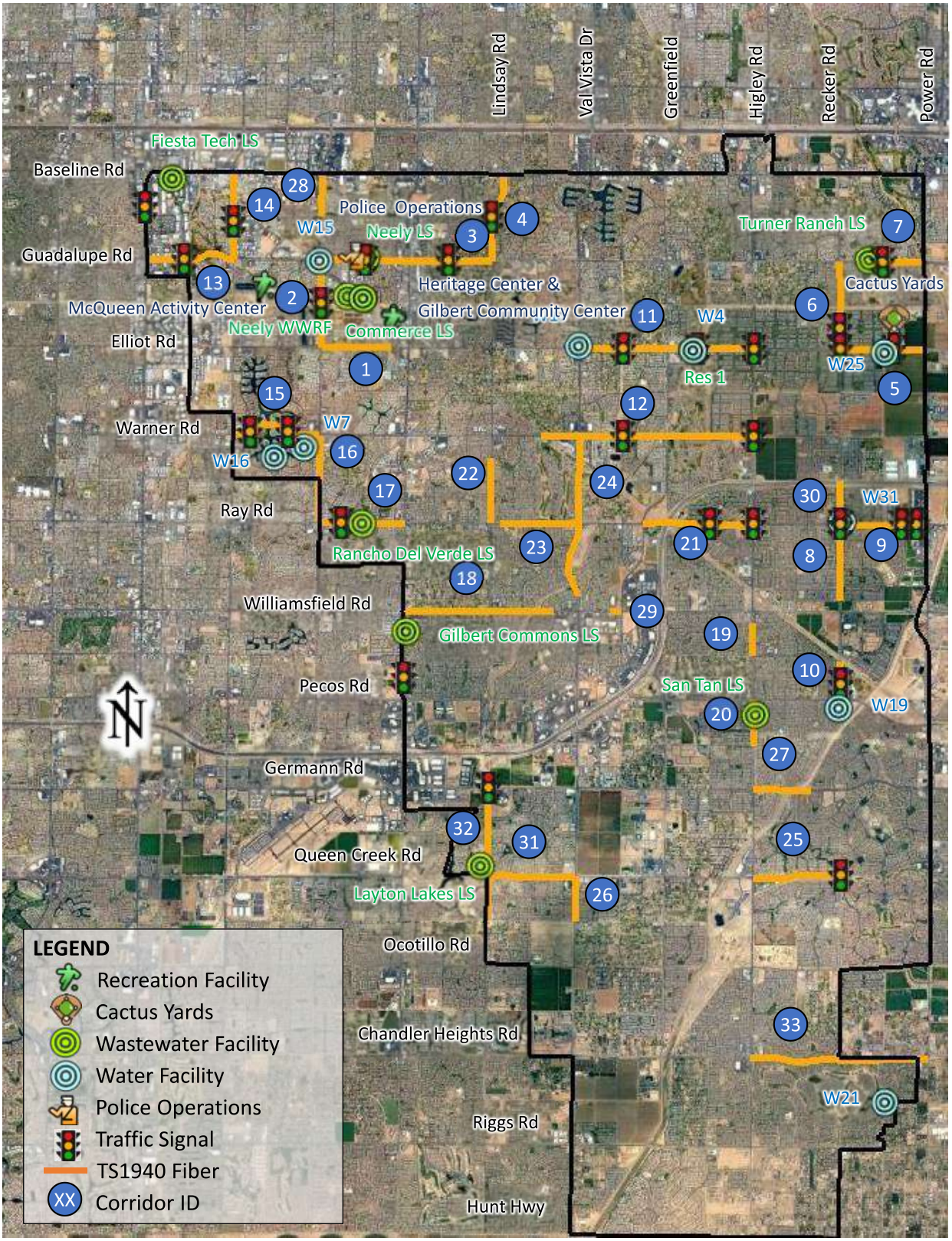
The Town has envisioned installing fiber infrastructure along all roadways to provide system redundancy and to potentially lease out conduit to third party communication companies. To accommodate this vision, the Town Standard of one four-inch conduit and one quad-duct is proposed to be installed along the subject arterial corridors. This would provide five duct paths along the newly installed conduit projects. Thus, increasing the availability for third party fiber to be installed.

Along the subject corridors there are segments of roadway that have existing 1.5-, 2-, 3-, and 4-inch conduits. In those segments, the 1.5- and 2-inch conduits will be abandoned and the existing 3- and 4-inch conduits will be evaluated during the design phase to be utilized as part of the TS1940 design. Since a 3-inch conduit can accommodate two-288 strand cables (a common cable size utilized by third party telecom companies) by meeting the fill ratio requirements of the National Electric Code, it is recommended that a single 3-inch conduit be left in place and should be supplemented with the Town Standard 4-inch conduit and a quad-duct. In addition, at areas where two 4-inch conduits are in place, a single quad-duct is recommended to be installed to supplement the existing conduits.

5.8 TS1940 Combined Facilities

Based on the information provided above, the following graphic provides an overall map of all the facilities that will be designed by TS1940/PR1336 and their approximate location with respect to the TS1940 arterial fiber corridors.

Figure 23: TS1940 Combined Facilities



6. Programming Considerations

The subject TS1940 project has a construction budget of just over $22 million dollars spread over the duration of three years. Design is anticipated to be completed by the end of calendar year 2023 and construction is anticipated to begin in calendar year 2024 (FY24). Thus, approximately $7.4 million dollars per year is available for the construction phase for each of the fiscal years FY24, FY25, and FY26. Accordingly, the report has prioritized projects to match the available budget.

To prioritize the corridors for implementation during the first, second, and third fiscal year of construction, a scoring mechanism was developed by YSMA. The corridors were scored based on the below two scoring factors and were then ranked from highest to lowest score.

Score Factors:

1) ***Connectivity Score*** *(The number of facilities adjacent to the proposed TS1940 fiber)*: A corridor scored 10 points for each facility that was being connected to the corridor. For example, if there are three facilities present, then that corridor would receive 30 points

2) ***Facility Score*** *(this is a proportionate score given to each type of facility based on how the departments ranked them for connection priority):* A facility score weightage of up to 25 points was allocated to water, wastewater, and IT supported facilities and were proportionally reduced based on the facility priority. Since the traffic signals are equally important, a weightage of up to 15 points per signal was allocated. The facility score was calculated using the following formula:

$$Facility\ Score = \frac{1 + number\ of\ facilities - department\ rank}{number\ of\ facilities} \times Facility\ Type\ Weightage$$

By adding the two scoring factors, the corridors were ranked from highest to lowest for construction priority. It should be noted that since PR1336 is currently programmed into the CIP, the arterial corridors adjacent to PR1336 facilities are defaulted to be included in the first phase of TS1940 construction, i.e. Corridor 1 and Corridor 5. Along with the 28 traffic signals, the following facilities were used in the scoring:

Water Sites

1. Well Site 25
2. Well Site 31
3. Well Site 19
4. Well Site 7
5. Well site 21
6. Well site 17
7. Well site 15
8. Well site 16
9. Well Site 4

Wastewater Sites

1. Neely L/S
2. Rancho L/S
3. Commerce L/S
4. San Tan L/S
5. Gilbert Commons LS
6. Layton Lakes LS
7. Turner Ranch LS
8. Fiesta Tech LS
9. Res 1
10. Neely WWRF

IT Supported Facilities

1. Police Operations
2. Neely Water Treat. Plant

6.1 Programming Consideration Results

Table 12 summarizes the corridor ranking based on the above scoring criteria. Table 13 summarizes the suggested fiscal year construction assigned to each corridor for the arterial fiber. This is based on approximately distributing the budget over a three-year period.

Tables 14 and 15 present the fiscal year and respective budgets when the branch connections to the water and wastewater facilities can be added, i.e. once fiber is along the arterial, branch connection can be added to the respective cabinet.

It should be noted that parks, recreation, and IT supported facilities are located adjacent to arterial fiber suggested to be added in FY24. Thus, the branch connection to those facilities can be installed in FY24 as well.

See Figures 24-26 for the graphical depiction of the corridors and facility connections that can be constructed during FY24, FY25, and FY26.

See Appendix A for the detailed scoring matrix.

Table 12: Arterial Corridor Rank

Corridor ID	Facilities adjacent to TS1940 Fiber	Connectivity Score	Facility Score	Total Score	Corridor Rank
11	6	60.0	63.9	123.89	1
3	4	40.0	80.0	120.00	2
9	4	40.0	67.2	107.22	3
5	3	30.0	55.0	85.00	4
1	3	30.0	35.0	65.00	5
17	2	20.0	37.5	57.50	6
10	2	20.0	34.4	54.44	7
12	2	20.0	30.0	50.00	8
21	2	20.0	30.0	50.00	8
15	2	20.0	30.0	50.00	8
32	2	20.0	27.5	47.50	11
7	2	20.0	25.0	45.00	12
2	2	20.0	23.3	43.33	13
13	2	20.0	22.5	42.50	14
16	2	20.0	22.2	42.22	15
20	1	10.0	17.5	27.50	16
4	1	10.0	15.0	25.00	17
6	1	10.0	15.0	25.00	17
14	1	10.0	15.0	25.00	17
25	1	10.0	15.0	25.00	17
18	1	10.0	15.0	25.00	17
33	1	10.0	13.9	23.89	22
8	0	0.0		0.00	23
19	0	0.0		0.00	23
22	0	0.0		0.00	23
23	0	0.0		0.00	23
24	0	0.0		0.00	23
26	0	0.0		0.00	23
27	0	0.0		0.00	23
28	0	0.0		0.00	23
29	0	0.0		0.00	23
30	0	0.0		0.00	23
31	0	0.0		0.00	23

Table 13: Fiscal Year Construction Priorities

Corridor	FY24	FY25	FY26
11	$ 1,046,535.10		
3	$ 1,012,134.50		
9	$ 514,079.80		
5	$ 520,790.40		
1	$ 445,243.50		
17	$ 521,794.00		
10	$ 237,090.10		
12	$ 1,229,146.10		
21	$ 665,971.80		
15		$ 581,716.20	
32		$ 744,185.00	
7		$ 399,124.70	
2		$ 568,812.40	
13		$ 539,610.50	
16		$ 528,658.00	
20		$ 311,789.40	
4		$ 538,614.70	
6		$ 552,635.20	
14		$ 527,923.50	
25		$ 536,305.90	
18			$ 862,321.20
33			$ 1,009,444.80
8			$ 446,443.40
19			$ 259,690.60
22			$ 391,196.00
23			$ 515,574.80
24			$ 937,617.20
26			$ 272,885.60
27			$ 552,674.50
28			$ 260,600.60
29			$ 77,383.80
30			$ 375,568.70
31			$ 515,876.40
Total	**$ 6,192,785.30**	**$ 5,829,375.50**	**$ 6,477,277.60**

Table 14: Fiscal Year Construction Priorities – WATER

Water Site	FY24	FY25	FY26
4	$ 57,450.00		
17	$ 28,800.00		
19	$ 110,460.00		
25	$ 49,260.00		
31	$ 41,880.00		
7		$ 173,505.00	
15		$ 40,425.00	
16		$ 277,035.00	
21			$ 350,790.00
Total	**$ 287,850.00**	**$ 490,965.00**	**$ 350,790.00**

Table 15: Fiscal Year Construction Priorities – WASTEWATER

Wastewater Site	FY24	FY25	FY26
Neely LS	$ 21,930.00		
Neely WWRF	$ 209,460.00		
Commerce LS	$ 423,510.00		
Rancho Del Verde LS	$ 28,050.00		
Res 1	$ 28,620.00		
Fiesta Tech LS		$ 518,580.00	
Turner Ranch LS		$ 14,670.00	
San Tan LS		$ 19,320.00	
Layton Lakes LS		$ 66,390.00	
Gilbert Commons LS			$ 136,140.00
Total	**$ 711,570.00**	**$ 618,960.00**	**$ 136,140.00**

Figure 24: FY24 Construction Corridors

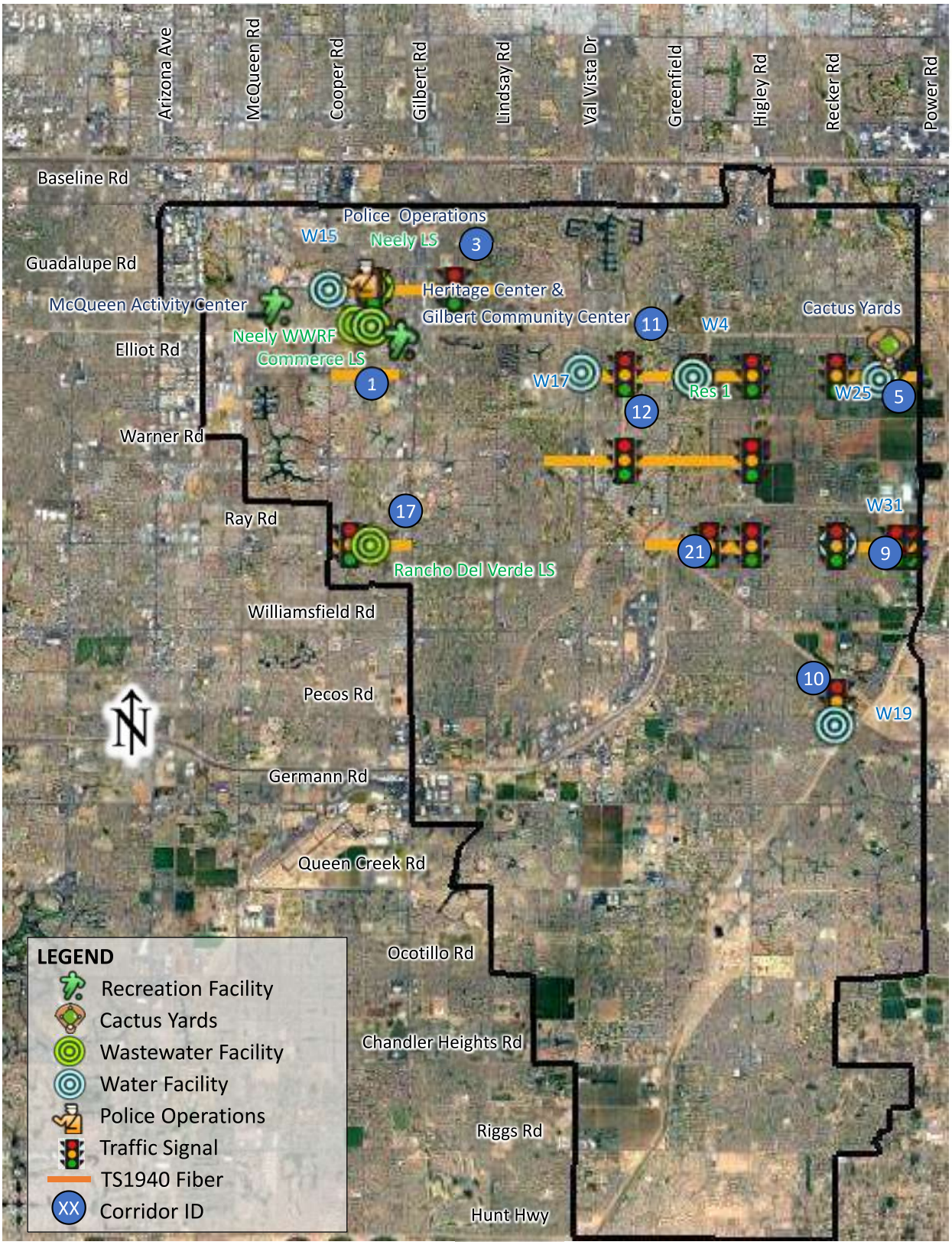


Figure 25: FY25 Construction Corridors

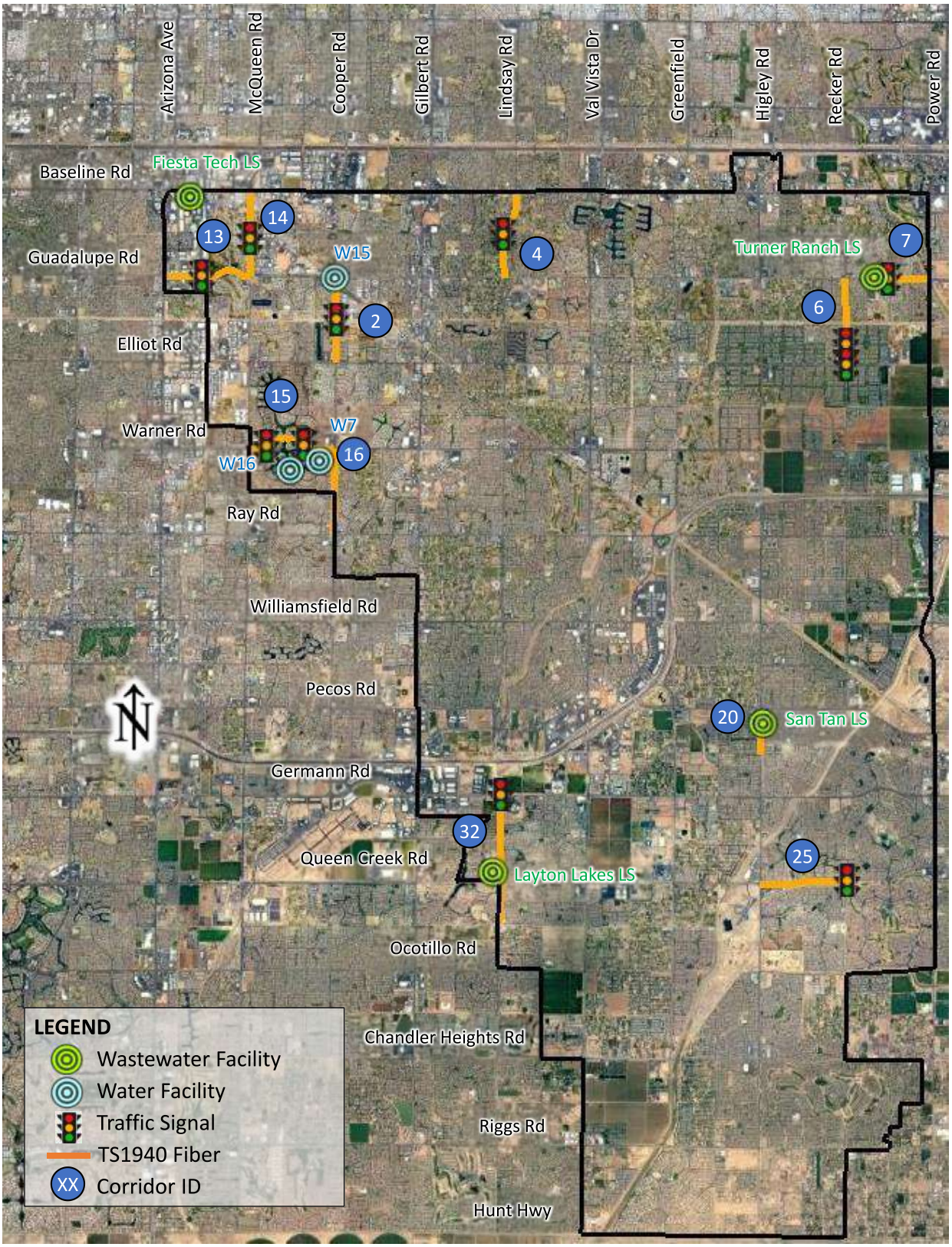
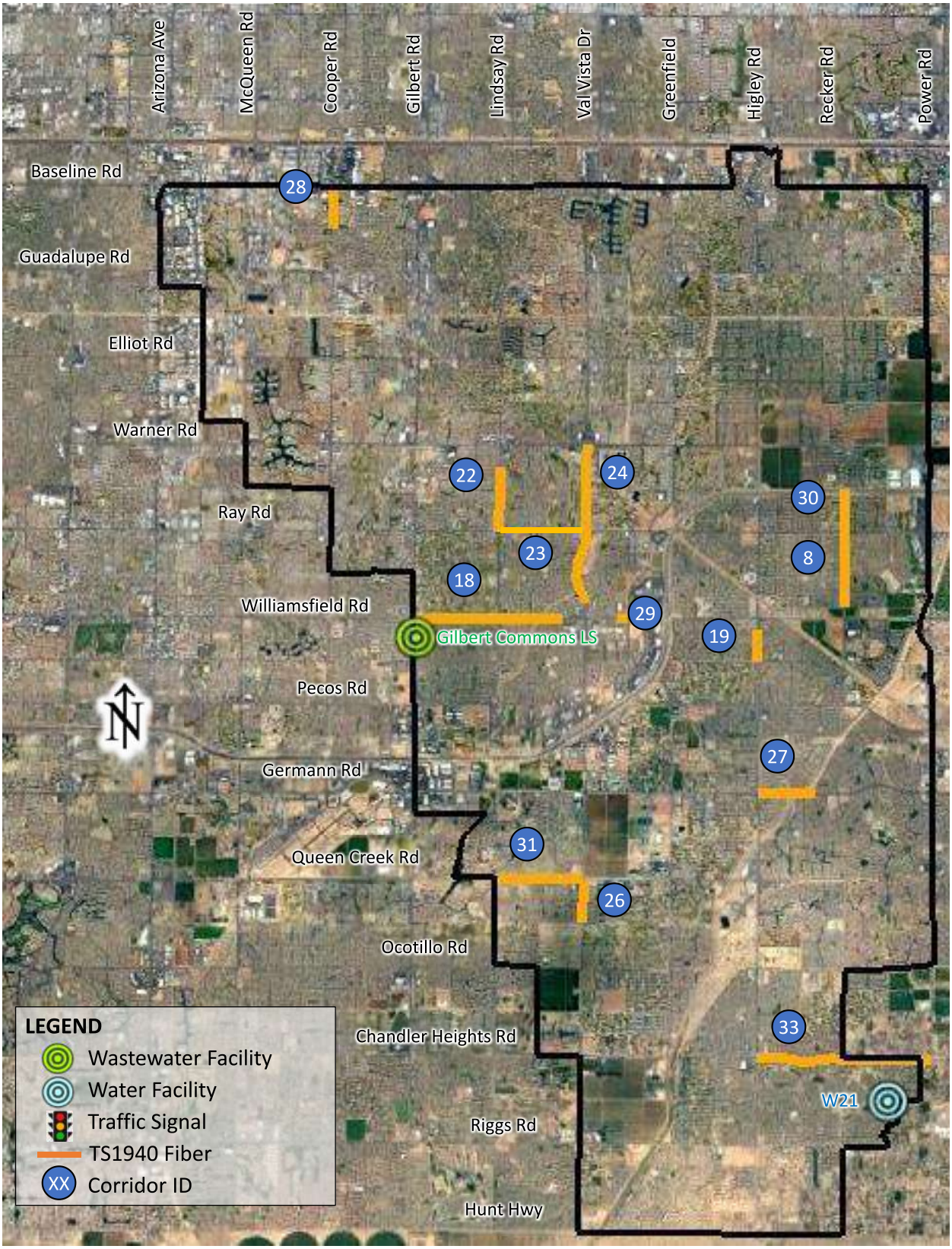


Figure 26: FY26 Construction Segments



Appendix A: Project Scoring Matrix

Corridor ID	Facilities adjacent to TS1940 Fiber	Connectivity Score	Facility Score	Total Score	Corridor Rank
11	6	60.0	63.9	123.89	1
3	4	40.0	80.0	120.00	2
9	4	40.0	67.2	107.22	3
5	3	30.0	55.0	85.00	4
1	3	30.0	35.0	65.00	5
17	2	20.0	37.5	57.50	6
10	2	20.0	34.4	54.44	7
12	2	20.0	30.0	50.00	8
21	2	20.0	30.0	50.00	8
15	2	20.0	30.0	50.00	8
32	2	20.0	27.5	47.50	11
7	2	20.0	25.0	45.00	12
2	2	20.0	23.3	43.33	13
13	2	20.0	22.5	42.50	14
16	2	20.0	22.2	42.22	15
20	1	10.0	17.5	27.50	16
4	1	10.0	15.0	25.00	17
6	1	10.0	15.0	25.00	17
14	1	10.0	15.0	25.00	17
25	1	10.0	15.0	25.00	17
18	1	10.0	15.0	25.00	17
33	1	10.0	13.9	23.89	22
8	0	0.0		0.00	23
19	0	0.0		0.00	23
22	0	0.0		0.00	23
23	0	0.0		0.00	23
24	0	0.0		0.00	23
26	0	0.0		0.00	23
27	0	0.0		0.00	23
28	0	0.0		0.00	23
29	0	0.0		0.00	23
30	0	0.0		0.00	23
31	0	0.0		0.00	23

Facility	Score
Each Facility	10
Water	25
Wastewater	25
Signal	15
IT	25

Department Lookup Score			
Facility	Department Priority	Weightage	Total fac
Water Facilities			
Well Site 25	1	25.00	
Well Site 31	2	22.22	
Well Site 19	3	19.44	
Well Site 7	4	16.67	
Well site 21	5	13.89	
Well site 17	6	11.11	
Well site 15	7	8.33	
Well site 16	8	5.56	
Well Site 4	9	2.78	
Waste Water Facilities			
Neely L/S	1	25.00	
Rancho L/S	2	22.50	
Commerce L/S	3	20.00	
San Tan L/S	4	17.50	
Gilbert Commons LS	5	15.00	
Layton Lakes LS	6	12.50	
Turner Ranch LS	7	10.00	
Fiesta Tech LS	8	7.50	
Res 1	9	5.00	
Neely WWRF	10	2.50	
IT Supported Facilities			
Police Operations	1	25.00	
Neely Water Treat. Plant	2	12.50	