



CITY OF NORMAN, OK CITY COUNCIL COMMUNITY PLANNING & TRANSPORTATION COMMITTEE MEETING

Municipal Building, Executive Conference Room, 201 West Gray, Norman,
OK 73069

Thursday, October 26, 2023 at 4:00 PM

AGENDA

It is the policy of the City of Norman that no person or groups of persons shall on the grounds of race, color, religion, ancestry, national origin, age, place of birth, sex, sexual orientation, gender identity or expression, familial status, marital status, including marriage to a person of the same sex, disability, retaliation, or genetic information, be excluded from participation in, be denied the benefits of, or otherwise subjected to discrimination in employment activities or in all programs, services, or activities administered by the City, its recipients, sub-recipients, and contractors. In the event of any comments, complaints, modifications, accommodations, alternative formats, and auxiliary aids and services regarding accessibility or inclusion, please contact the ADA Technician at 405-366-5424, Relay Service: 711. To better serve you, five (5) business days' advance notice is preferred.

CALL TO ORDER

AGENDA ITEMS

1. PUBLIC TRANSIT REPORT.
2. DISCUSSION REGARDING THE FLOOD WARNING SYSTEM REPORT.
3. UPDATE ON THE PORTER AVENUE CORRIDOR PROJECT AND THE JAMES GARNER WIDENING PROJECT.

ADJOURNMENT



MEMO TO: Council Community Planning and Transportation Committee

FROM: Taylor Johnson, Transit and Parking Program Manager

THROUGH: Shawn O'Leary, P.E., CFM, Director of Public Works

DATE: October 26, 2023

SUBJECT: Public Transportation Monthly Report

T.J.
SA

office memorandum

Purpose

The Public Transportation Monthly Report provides updates to City Council on public transit related items. In addition to the updates provided below, attached is the EMBARK Norman Performance Report and the Norman On-Demand Performance Report for the previous month. These reports provide updates on key metrics associated with the operations of each respective transit systems.

Updates

Go Norman Transit Plan (City of Norman Transit Long Range Plan Update)

- The Go Norman Transit Plan was approved by resolution by Council on June 22nd, 2021. Staff are continuing to move forward on the next steps as recommended in the plan. Recent work includes:
 - On February 14, 2023, Council approved contract K-2223-72 with Stronghold Construction to complete the renovation of the 320 E. Comanche St. property into the Norman Transit Center. A pre-construction meeting was conducted on February 21, 2023 to organize the start of the project, and a Notice to Proceed was issued on February 28, 2023. Construction commenced on March 1, 2023. It was estimated that the project would be completed and open in August 2023, however, the project has been delayed due to asbestos remediation and other items that came up throughout the project. The project was substantially completed on October 6, 2023. A ribbon cutting ceremony was held on October 12, 2023 and the start of service with the opening of the facility on October 16, 2023. Work on the project during the month of September 2023 included:
 - Outdoor seating structure installed
 - Sheetrock installed
 - Interior paint complete
 - Final concrete work
 - Birdnetting installed
 - Storefront glass installation
 - Grading for landscaping
 - Flooring and cabinets installed
 - Plumbing fixtures installed
 - Signage installed
 - On December 13, 2022 Council unanimously approved a resolution to alter bus routes and transit bus services as recommended in the Go Norman Transit Plan to take effect in 2023. Staff are actively working to implement the approved changes, which includes changes to bus stops, signage and advertising, operator training, and outreach. These route changes went into effect on October 16, 2023, aligning with the opening of the new Norman Transit Center.

Grants

- On April 12, 2023 Council approved a grant application to FTA's Bus and Bus Facilities (5339b) and Low-or No-Emissions Grants to purchase 6 CNG cutaway buses for fleet replacement. On June 26, 2023 FTA announced the project selections, and the City's grant application was awarded. Staff will begin the process to request Council's acceptance of the grant and procurement of the vehicles.
- Staff continue to research eligible grants to support existing operations, vehicle needs, and future improvements. Staff are preparing applications for the two ACOG grants that are currently available. On September 26, 2023 Council approved resolutions for the applications to the Air Quality Small Grant for additional bus stop installations and to the Public Fleet Conversion Grant for pantograph, or overhead, chargers for the electric buses to charge in route.

Fleet Maintenance & Vehicle Procurement

- City Fleet Maintenance staff continue to ensure that the transit fleet is in operational condition each morning for line up, despite the age of the vehicles that the City inherited.
 - The City's Transit Fleet includes 27 revenue vehicles, 13 in the fixed-route fleet and 14 in the paratransit fleet. Unfortunately, even accounting for replacement vehicles that have been accepted so far, 17 out of 27 (4 of 13 in the fixed route fleet; 13 of 14 in the paratransit fleet) of the revenue vehicles used in the City's transit fleet have met their useful life and are eligible to be retired according to FTA requirements.
 - There are multiple ongoing purchases for replacement vehicles in progress, and once all of these ordered vehicles have been delivered it is expected the City will only have 9 out of 27 (3 out of 13 in

office memorandum

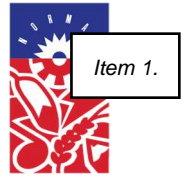
- the fixed route fleet; 6 out of 14 in the paratransit fleet) of the revenue vehicles used in the City's transit fleet which have met their useful life and are eligible to be retired according to FTA requirements.
- The City is currently in the process of purchasing 5 paratransit vans and staff anticipates receiving these vehicles October/November 2023. Below is background on this purchase:
 - On December 14, 2021 the City Council passed and adopted resolution R-2122-72 transferring \$346,703 from the Capital Fund Balance to be matched with \$122,812 from the Public Transit and Parking Fund to be used to replace 5 paratransit vehicles in the Transit Fleet for a total of \$469,515. Due to ongoing supply chain issues the price of the vehicles had increased, however staff were able to identify additional FTA grant funding allocated to Norman to supplement the cost increase and decrease the amount of local match that was provided from the Public Transit and Parking Fund. Resolution R-2122-98 was approved by Council on March 8 transferring an additional \$149,454 (for a total cost of \$584,655) to cover the cost increase. FTA grant OK-2020-026 will be amended to \$496,157 leaving a local match of \$88,508 (a reduction in the local matching funds of \$34,304.)
- The City is currently in the process of purchasing 3 paratransit ADA compliant minivans for revenue service as well as 2 non-revenue support vehicles. The support vehicles arrived in late June and are already in service. The paratransit minivans were delivered in mid-August, however did not meet initial inspections and will undergo warranty repairs before being accepted. Below is background on this purchase:
 - Council provided funding in the budget sufficient to outright purchase a single large transit bus and a single paratransit vehicle. Because of effective use of grant funding and only using a small percentage of budgeted money as a local match against grant funds, staff proposed to use \$355,692.55 of the remaining funding (\$357,810) for the outright purchase of 3 additional ADA minivans for the paratransit fleet and replacement of two support vehicles which was approved by the City Manager on April 6, 2023.
 - The first of the two non-revenue support vehicles, a 2023 Ford Escape, was delivered on June 8, 2023 and staff are completing the proper paperwork and inspections to bring it into active service and decommission the vehicle it will be replacing.

Conclusion

Thank you for your review of these updates and attached monthly performance reports. Staff are prepared to answer any questions you may have.

Attached:

1. EMBARK Norman Performance Report for September 2023.
2. Norman On-Demand Performance Report for September 2023.



PERFORMANCE REPORT

Transit System Report

September 2023

Purpose

The Transit System Report provides a summary of both internal indicators and performance measures used to evaluate the performance of the EMBARK transportation system for the City of Norman. The internal indicators are mainly used by staff to compare performance to previous periods whereas, the performance measures having

specific targets are more outcome-based and are included in EMBARK's strategic business plan to help demonstrate accomplishments given the resources that are provided. The internal indicators and performance measures included in this report address ridership, dependability, safety and align with EMBARK's mission.

Total Ridership

Total ridership for EMBARK Norman in September 2023 was 35,830 compared to 23,948 in September 2022. The average total daily ridership was 1,433 for September 2023, a 49.58% increase from 958 in September 2022. Fiscal-year-to-date ridership is 104,285 passengers, a 50.95% increase from the September 2022 YTD total of 69,085.

The fixed-route service totaled 33,881 for September 2023 compared to 21,897 for September 2022.

Average fixed-route daily ridership for September 2023 was 1,362 compared to 863 for September 2022, a 57.82% increase. Passengers with bicycles or similar means of travel totaled 1,011, compared to 861 for September 2022. Passengers with wheelchairs or other mobility devices totaled 498, compared to 332 for September 2022.

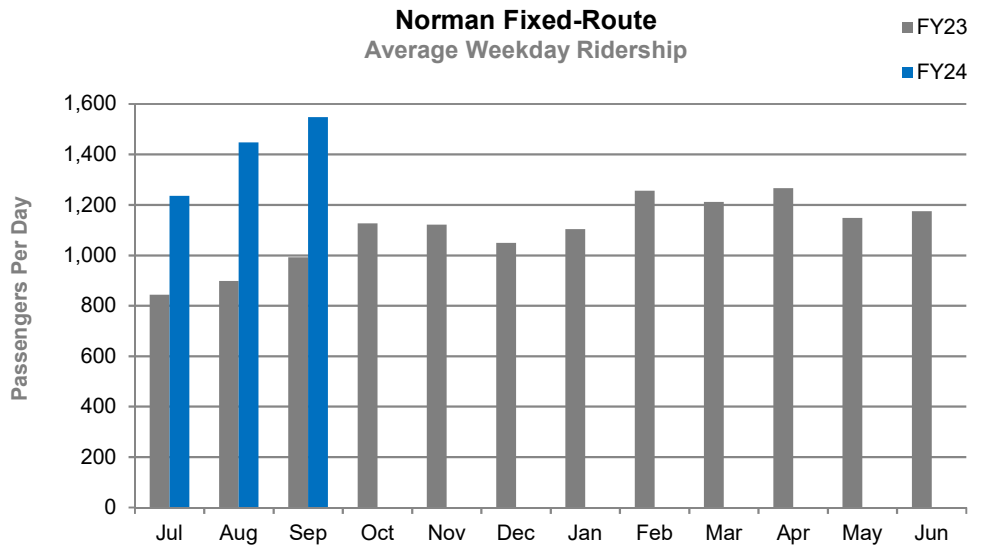
PLUS ridership totaled 1,949 for September 2023, compared to 2,051 for September 2022. The average total PLUS ridership was 78 for September 2023, a 4.92% decrease from 82 in September 2022.

Passengers with wheelchairs or other mobility devices totaled 383 for September 2023, compared to 388 for September 2022, a 1.29% decrease.

Norman Transit Services	Sep FY24	Sep FY23	+/- Sep FY23
Fixed Routes (M-F)	30,848	20,817	48.19%
110 - Main Street	5,919	3,842	54.06%
111 - Lindsey East	14,797	10,452	41.57%
112 - Lindsey West	4,056	2,798	44.96%
120 - West Norman	206	221	-6.79%
121 - Alameda	5,778	3,498	65.18%
144 - Social Security	92	6	1433.3%
Fixed Routes (Sat)	3,033	1,113	172.51%
110 - Main Street	784	238	229.41%
111 - Lindsey East	1,008	370	172.43%
112 - Lindsey West	431	180	139.44%
121 - Alameda	810	325	149.23%
PLUS ADA Service	1,949	2,051	-4.97%
PLUS (M-F)	1,866	1,970	-5.28%
PLUS (Sat)	83	81	2.47%
Bikes	1,011	861	17.42%
Wheelchair	498	332	50.00%
PLUS Wheelchair	383	388	-1.29%

Fixed Route Weekday Ridership

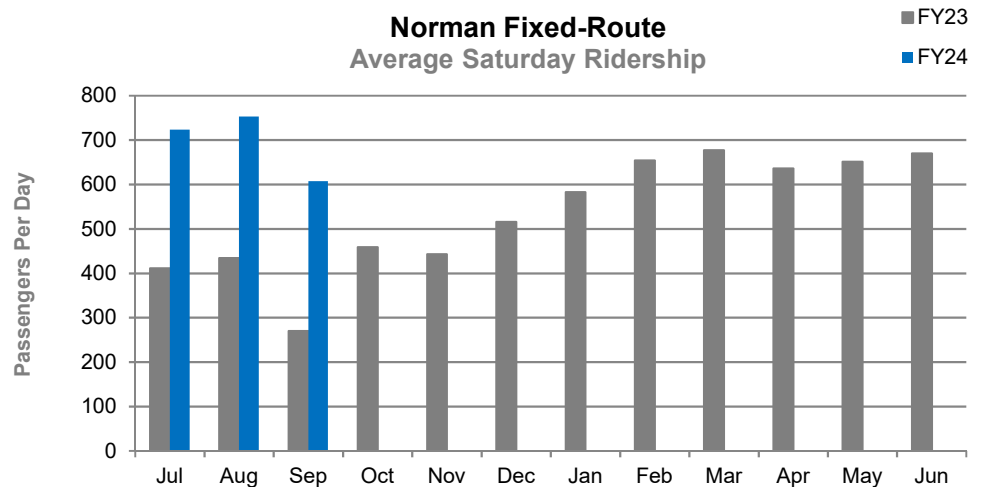
Total fixed-route weekday ridership for September 2023 was 30,848, a 48.19% increase from 20,817 in September 2022. Average weekday passenger ridership totaled 1,548 in September 2023; a 56.05% increase compared to 992 for September 2022. The average RPSH was 22.70.



Fixed Route Saturday Ridership

Total fixed-route Saturday ridership for September 2023 was 3,033, a 172.51% increase from 1,113 in September 2022. Average Saturday passenger ridership totaled 607 for September 2023, a 124.81% increase from 270 in September 2022. The average RPSH was 17.15.

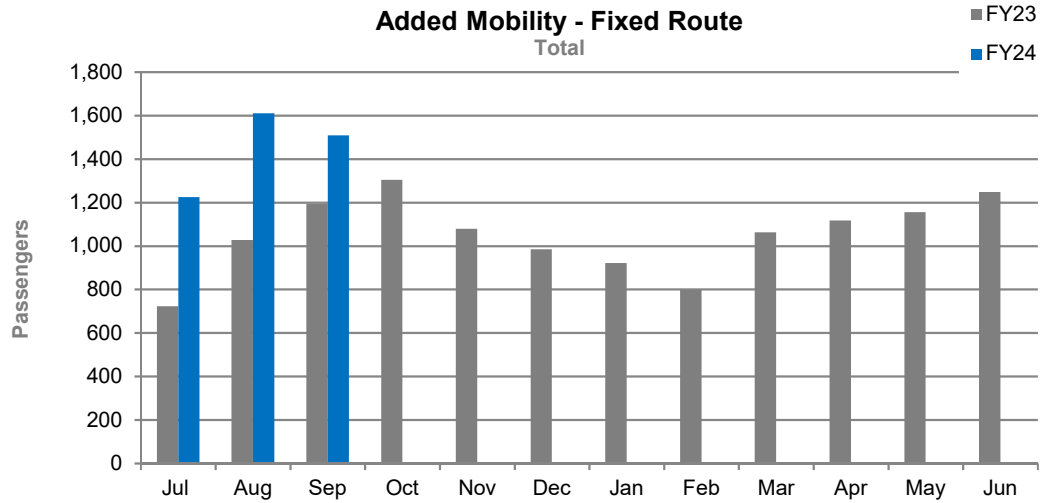
The University of Oklahoma hosted Saturday football games on 9/2, 9/9, and 9/30.



Added Mobility – Fixed Route

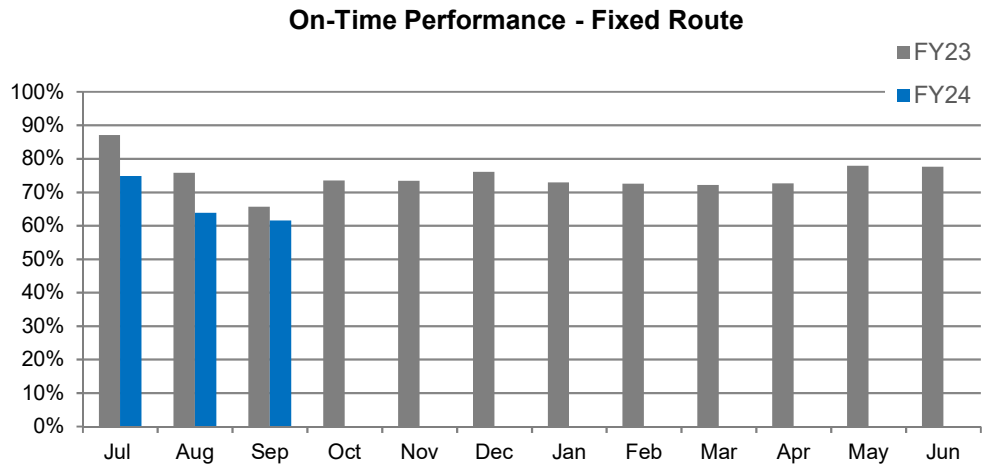
Total passengers with added mobility, such as bikes and wheelchairs, totaled 1,509 for September 2023, a 26.49% increase from 1,193 in September 2022.

Bike passengers totaled 1,011, a 17.42% increase from 861 in September 2022. Wheelchair passengers totaled 498, a 50.00% increase from 332 in September 2022.



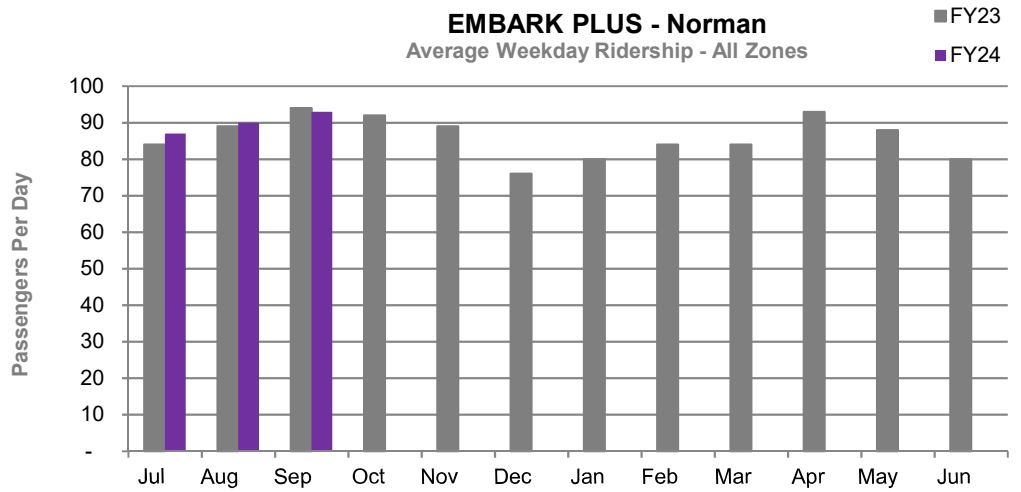
On-Time Performance – Fixed Route

Cumulative on-time performance for fixed-route buses was 61.5% in September 2023, a 4.20% decrease from 65.7% in September 2022.



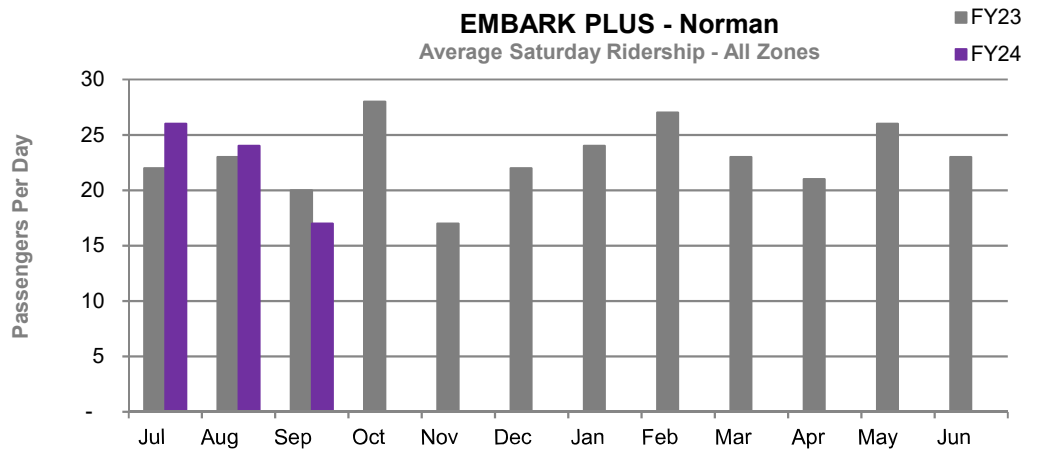
PLUS Weekday

Total PLUS weekday ridership for September 2023 was 1,866, a 5.28% decrease from 1,970 in September 2022. Average weekday passenger ridership totaled 93 for September 2023, a 1.06% decrease from the September 2022 average of 94. RPSH was 1.26.



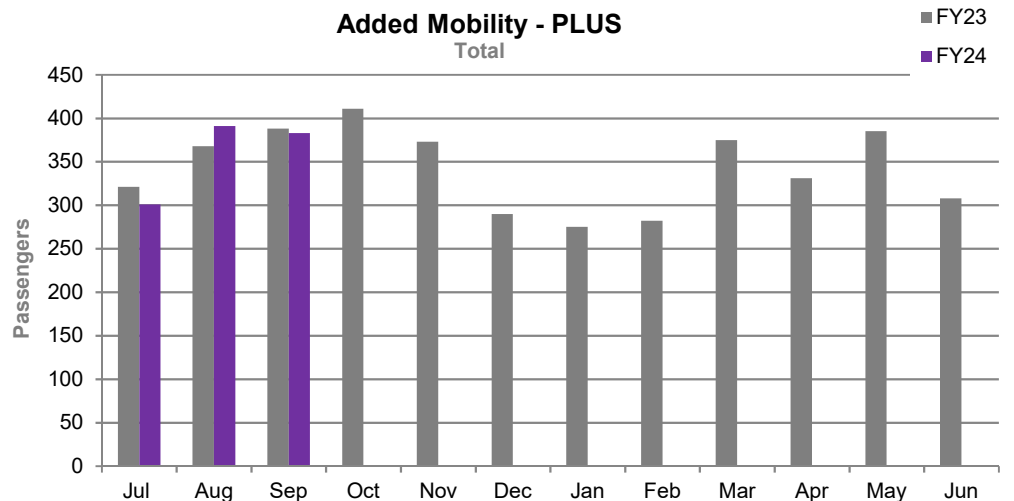
PLUS Saturday

Total PLUS Saturday ridership for September 2023 was 83, a 2.47% increase from 81 in September 2022. Average Saturday passenger ridership totaled 17 for September 2023, a 16.05% decrease from 20 in September 2022. RPSH was 1.18.



Added Mobility - PLUS

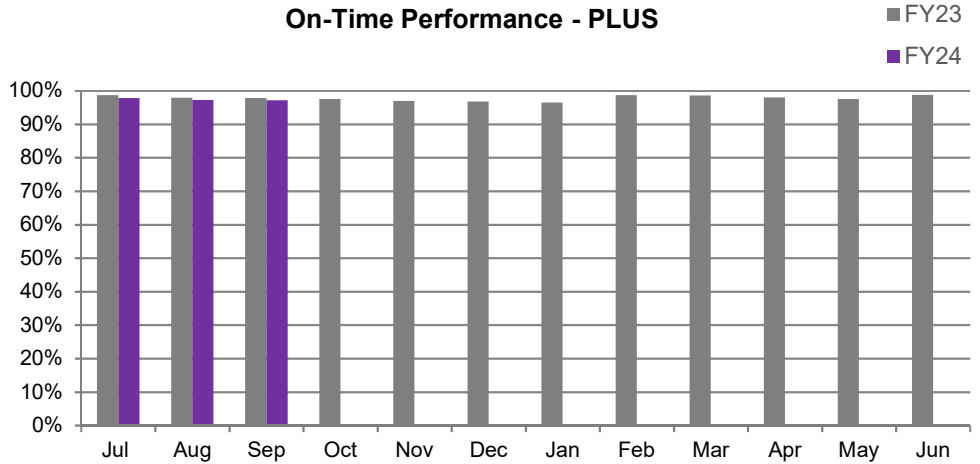
PLUS passengers with added mobility totaled 383 for September 2023, a 1.29% decrease from 388 in September 2022.



On-Time Performance - PLUS

Cumulative on-time performance for PLUS buses was 97.20%, a 0.62% decrease from 97.82% in September 2022.

Weekday on-time performance in the primary zone was 97.41%, a 0.51% decrease from 97.92% in September 2022. Weekday on-time performance in the secondary zone was 96.06%, a 1.46% decrease from 97.52% in September 2022. Saturday on-time performance was 100.00%, a 2.60% increase from 97.40% in September 2022.



PLUS Weekday Service Summary	Sep FY24	Sep FY23	+/- Sep FY23		PLUS Saturday Service Summary	Sep FY24	Sep FY23	+/- Sep FY23
Total Passengers	1,866	1,970	-5.28%		Total Passengers	83	81	2.47%
Total Trips	1,771	1,900	-6.79%		Total Trips	86	77	11.69%
Trips Daily Average	84	94	-10.64%		Trips Daily Average	22	19	11.69%
Trips Requested	1,832	1,900	-3.58%		Trips Requested	86	77	11.69%
Denied Trips	61	0	6,100%		Denied Trips	0	0	0.00%
Capacity Denials	0	0	0.00%		Capacity Denials	0	0	0.00%
No Show	32	38	-15.79%		No Show	3	2	50.00%

PLUS Applications	Sep FY24	Sep FY23	+/- Sep FY23
New Applications	22	15	46.67%
Renewals Received	7	13	-46.15%
Applications Approved	17	20	-15.00%
Applications Denied	2	2	0.00%

Summary of Services Table: September 2023

The table below provides daily averages for the number of passengers carried by many of the services offered by EMBARK Norman. The year-to-date (YTD) figures are cumulative totals.

EMBARK Norman Service Summary	ADP Sep FY24	FY24 YTD	FY23 YTD	Service Profile	Sep FY24	Sep FY23
Fixed Routes (M-F)	1,548	88,642	58,222	Weekdays	20	21
Fixed Routes (Sat)	607	9,658	4,735	Saturdays	5	4
PLUS (M-F)	93	5,679	5,710	Gamedays	3	3
-Zone 1*	66	4,344	4,764	Holidays	1	1
-Zone 2**	22	1,335	946	Weather	1	0
PLUS (Sat)***	21	306	281	Fiscal YTD Days	77	77
				Cal. YTD Days	282	282

*Requires 3/4 mile

**Operates only on Weekdays until 7:00 pm

***Operates only in Zone 1

Strategic Performance Measures

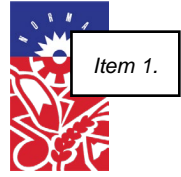
MEASURE	FY 24 YTD	FY 24 Targets	
# of Norman fixed-route passenger trips provided	98,300	251,881	■
# of Norman paratransit trips provided	5,985	21,000	■
% of on-time Norman paratransit pick-ups	97.41%	98.58%	●
# of Norman bus passengers per service hour, cumulative	20.60	13.04	■
# of Norman bus passengers per day, average	1,281	800*	●
% of Norman required paratransit pick-ups denied due to capacity	0.00%**	0.00%*	●
% of on-time fixed-route arrivals	66.70%	80.94%	▲

*These targets are not being tracked in LFR but can be found in the KPI spreadsheet.

**One denial due to capacity was recorded for FY23

Glossary

- **Added Mobility** – Wheelchairs, bicycles, scooters, and other devices used by passengers in conjunction with transit
- **ADP** – Average Daily Passengers
- **ADR** – Average Daily Ridership
- **AVG** – Average
- **Fixed Route** – Regular bus service
- **FY22** – The fiscal year 2022. Lasted from 7/1/2021 to 6/30/2022
- **FY23** – The fiscal year 2032. Lasting from 7/1/2022 to 6/30/2023
- **FY YTD** – Fiscal Year, Year to Date
- **KPI** – Spreadsheet used to record and compare all data used in the monthly report
- **LFR** – "Leading for Results," EMBARK's internal performance measurements and targets
- **OTP** – On-time performance
- **Paratransit** – ADA vehicle service for seniors and other clients with special needs
- **PAX** – Passenger
- **PLUS** – Brand name for EMBARK Paratransit service
- **RPSH** – Riders per service hour
- **SAT** – Saturday
- **WKD** – Weekday
- **YOY** – Year-over-year, used to compare the previous year's performance when available
- **ZONE 1** – Primary zone for PLUS operation
- **ZONE 2** – Secondary zone for PLUS operation



Performance Report

September 2023

Microtransit Pilot Program Performance Report

Purpose

The Microtransit Pilot Program Performance Report provides a summary of service performance measures used to evaluate the performance of the Norman On-Demand microtransit transportation system for the City of Norman. The performance measures used by staff may change over the course of the pilot program. Initially we will be comparing the key performance indicator goals that were outlined in the request for proposals (RFP) to the data provided from Via for the Norman On-Demand program. These indicators and performance measures include average walking distance, maximum walking distance, average rider wait time, maximum rider wait time, and the percentage of ride requests completed within 20 minute wait time.

Service Profile, Hours, and Pricing

Norman On-Demand is a pilot microtransit service which launched for late night and Sunday service in core Norman on August 21, 2023. Norman On-Demand is a turnkey service provided by TransitTech provider Via. The Norman On-Demand app is available on the Apple App Store and the Google Play Store. This service compliments existing public transit service by extending service into the late night hours and during the day on Sundays for a small fee. Because this is a pilot program, there may be changes to service area, hours of operations, or other aspects of the service while the City focuses the program to efficiently serve the needs and desires of our community.

Service Hours		Pricing	
Monday-Wednesday	7pm – 1am	First Passenger	\$2.00
Thursday- Saturday	7pm – 3am	Each Additional Passenger	\$1.00
OU SafeRide: Thursday- Saturday	10pm – 3am	OU SafeRide (OU Students using OU email address during SafeRide hours)	Free
Sunday	10am – 6pm		
<i>ADA/Wheelchair Accessible Vehicles available upon request.</i>			

Key Performance Indicator Measures

MEASURE	Target	September	Service to Date (8/21/23 – 9/30/23)
Average Walking Distance	<0.10 miles	0.08 miles	0.08 miles
Maximum Walking Distance	0.25 miles	0.32 miles	0.32 miles
Average Rider Wait Time	<15 min	18.1 min	17.4 min
Maximum Rider Wait Time	20 min	N/A*	N/A*
Percentage of Ride Requests Completed Within 20min. Wait Time	>80%	63.22%**	68.39%**

*OU has requested longer available wait times for OU students during SafeRide hours (up to a 2 hour max). Because we are not yet able to filter these rides from the remaining data, we cannot confidently report this statistic at this time

**Number of ride requests with 'Completed' status that have a wait time of 20 minutes or less as a percentage of the total number of ride requests with 'Completed' status. This data may also be skewed by longer available wait times for OU students during SafeRide hours.

Additional Performance Measures

Ridership

Norman On-Demand completed 2,223 rides in September 2023, which is a 307% increase over the August 2023 total of 546. Please note that August 2023 only includes days from launch, August 21, to the end of the month. There were a total of 9 wheelchair accessible vehicle (WAV) requests in the month of September.

Ridership	September	Service to Date (8/21/23 – 9/30/23)
Total number of passengers	2223	2769
Total # of Trips Completed	1278	1563
# of Trips Requesting WAV	9	12

Rider Experience

The system includes an automated feedback process where all ride ratings with 4 stars or fewer that have actual written feedback attached are reviewed by customer support agents. Poor ride ratings alone are not categorized as complaints. A single complaint was received in the month of September, in which there was a dispute of the driver falsely changing the ride status to no-show. That dispute was resolved by customer service who was able to confirm the correct pick-up location.

Rider Experience	September	Service to Date (8/21/23 – 9/30/23)
Average Ride Duration	10.3 min	10 min
Average Ride Distance	3.1 miles	3 miles
Average Ride Rating	4.9 (out of 5 stars)	4.9 (out of 5 stars)

Program Engagement and Rider Growth

Since the Norman On-Demand App launched on August 21, 2023, 2023 individual accounts have been created, an increase of 390 (or 23.88%) over the course of the month of September. Of these accounts nearly one in three, or 31.98%, have utilized the service at least once. We are not yet able to differentiate between OU student accounts and others, but look forward to being able to do so in the future. Riders are also able to call 405-643-8638 to schedule rides without using the App.

Engagement – Service to Date (8/21/23 – 9/30/23)		
App Accounts Created Since Launch	2023	
OU Student Accounts	N/A	N/A
Active Accounts*	1055	52.15%
Rider Accounts**	647	31.98%
Repeat Rider Accounts***	420	20.76%
*accounts where user has engaged with ride requests at least once		
**accounts with at least 1 completed ride		
***accounts with at least 2 completed rides		

Accidents and Vehicles

There was one minor collision that occurred on September 23 between a Norman On-Demand vehicle and another vehicle. No physical injuries to the driver or riders, with minor damage to the front bumper of the Norman On-Demand vehicle. All incidents are reported to Norman Transit staff in a timely manner by our provider Via.

One complication for the new service was located by the Field Manager when conducting wheelchair accessible vehicle (WAV) trainings prior to the service start. Due to an issue with the seatbelt, one of the two WAV vehicles is currently at a maintenance shop in Oklahoma City waiting on a new seat belt part to arrive in order to fix the issue. This issue has had minimal impact on the service because the other WAV vehicle is still in active use.



City of Norman

Flood Warning System Overview

City Council Community Planning and Transportation Committee Meeting

October 26, 2023 – 4:00pm

Project No. 2122-63



Why Does Norman Need a Flood Warning System?



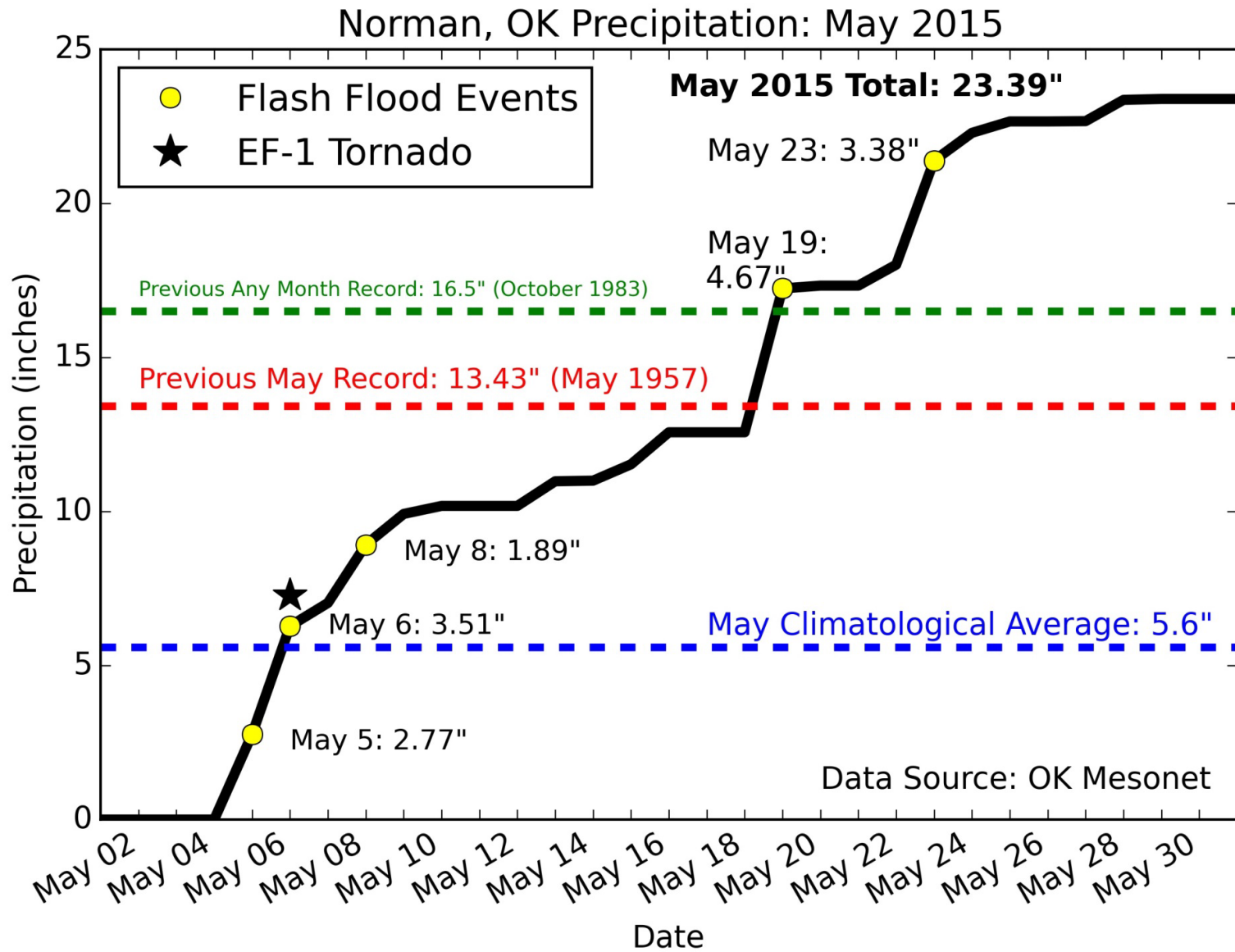
May 2015 Flood – Rock Creek Rd and 72nd Ave NW



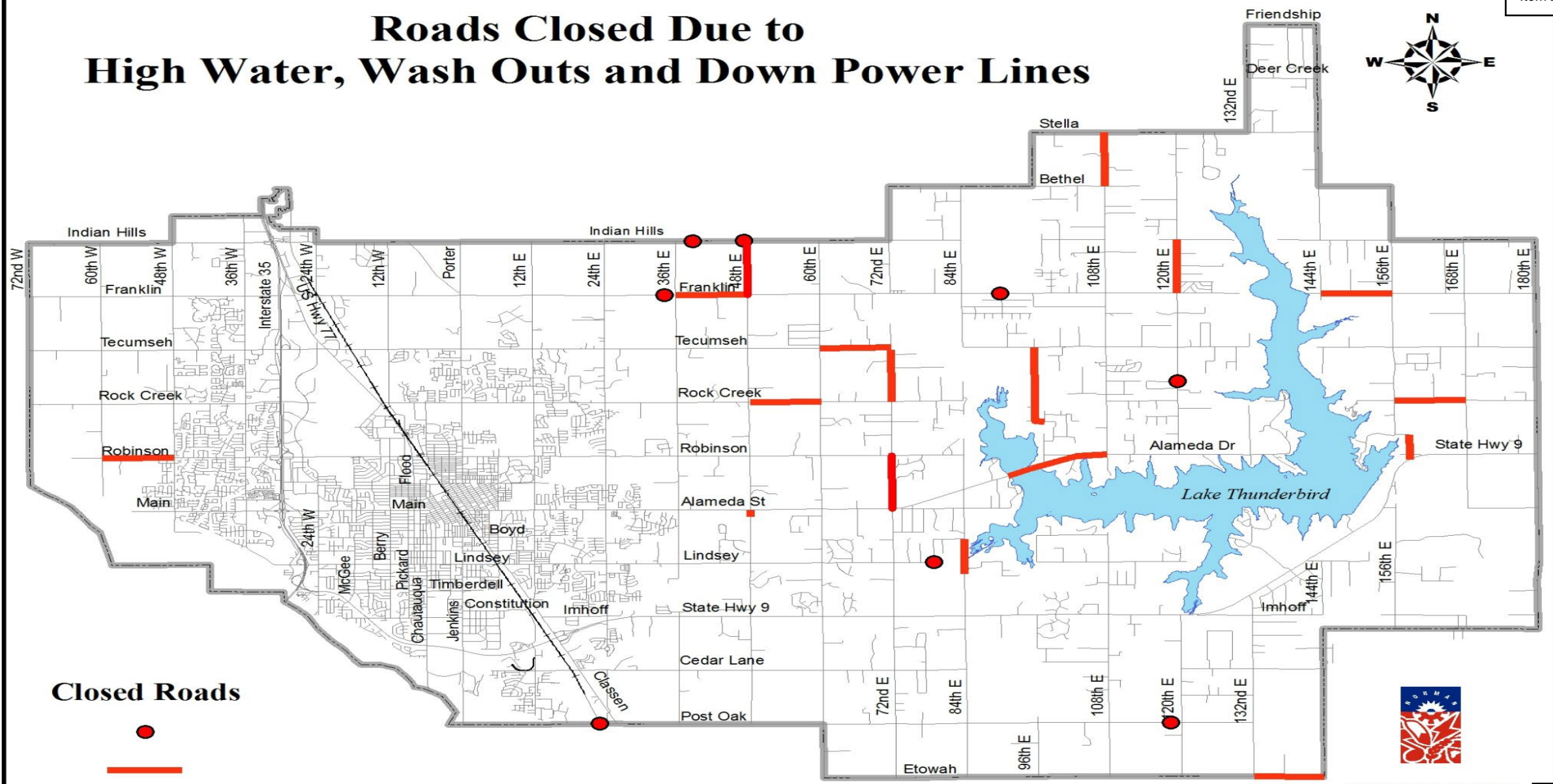
May 2015 Flood – 72nd Ave NE between Robinson and Alameda



May 2015 Flood – Andrews Park Pavilion



Roads Closed Due to High Water, Wash Outs and Down Power Lines



Closed Roads



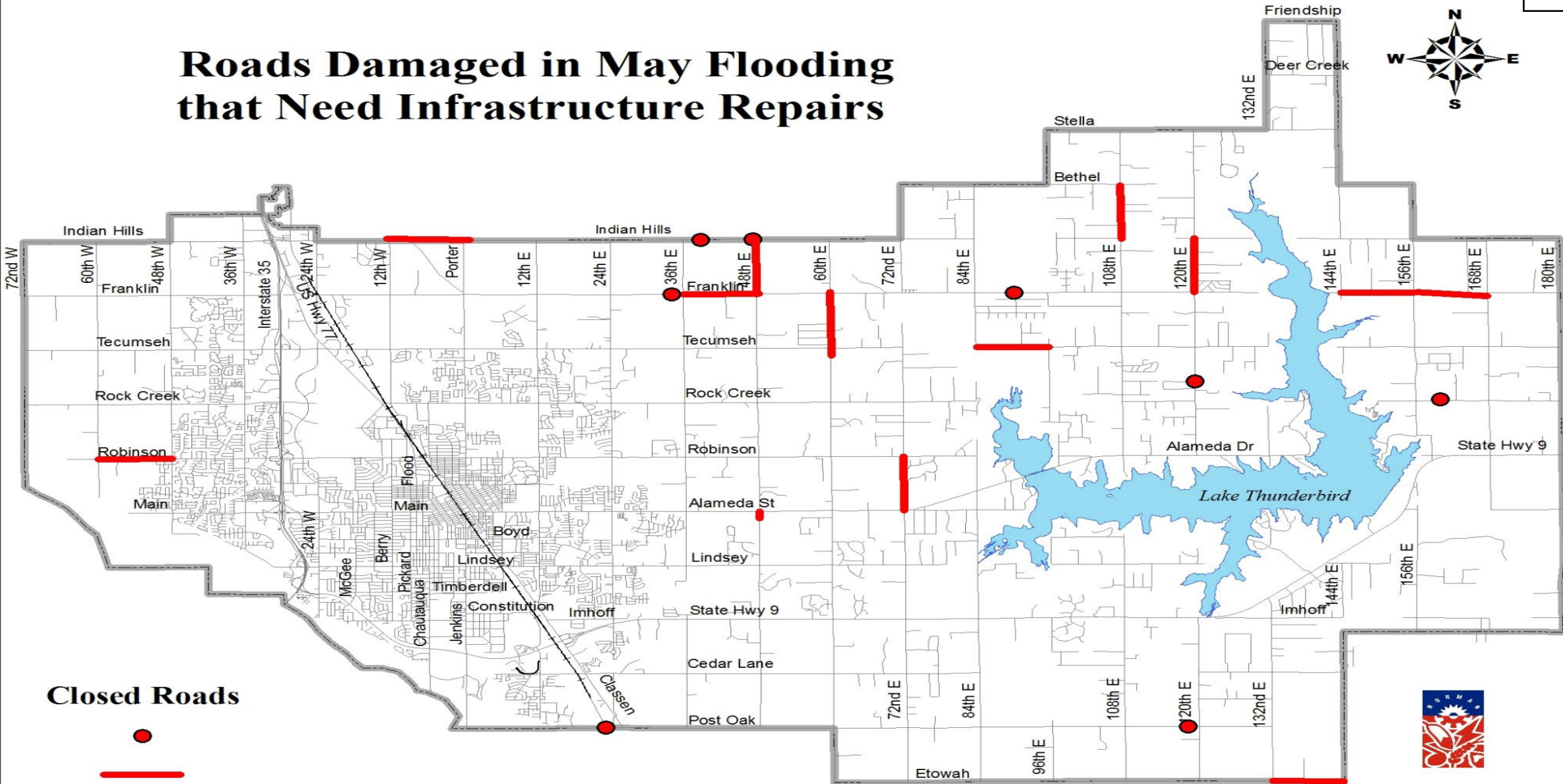
May 26, 2015 3:00pm

0 2 Miles



Map Produced by the City of Norman Geographic Information System. The City of Norman assumes no responsibility for errors or omissions in the information presented.

Roads Damaged in May Flooding that Need Infrastructure Repairs



Closed Roads



0 2 Miles

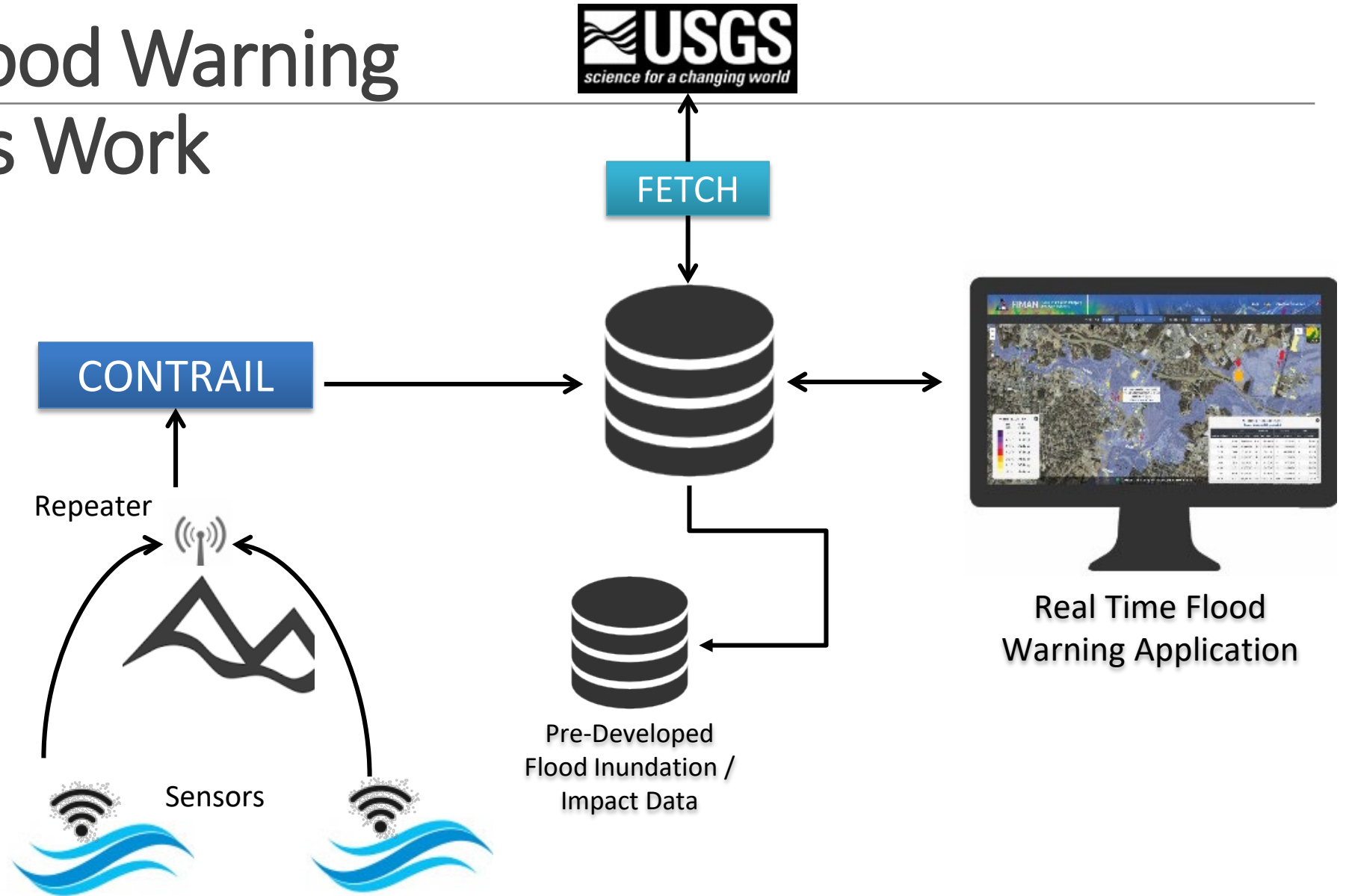


Map Produced by the City of Norman Geographic Information System. The City of Norman assumes no responsibility for errors or omissions in the information presented.

Flood Warning System Scoping and Implementation Milestones

- November 2020 – City applies for FEMA Building Resilient Infrastructure & Communities (BRIC) Grant for scoping project for flood warning system
- February 2022 – City receives notification of award of BRIC grant
- March 8, 2022 – Council accepts grant contract K-2122-103 with ODEMHS
 - \$100,000 grant
 - 25% City cost share
- September 13, 2022 – Meshek/ESP awarded contract K-2223-19 for scoping project
- July 2023 – Meshek/ESP delivered final scoping report
- September 26, 2023 – Council approves Resolution R-2324-65, authorizing CM or his designee to submit grant applications for Flood Warning implementation in the amount of \$313,000
- October 2023 – Application submitted for US DOT SMART grant
- December 2023 – deadline for BRIC grant application

How Flood Warning Systems Work



What Are Inundation Libraries?

“Library” of flood inundation mapping near gaging stations

- + Gaging Stations
- + Telemetry
- + Pre-made inundation libraries
- + Web tool to efficiently communicate

Real-time flood mapping solution

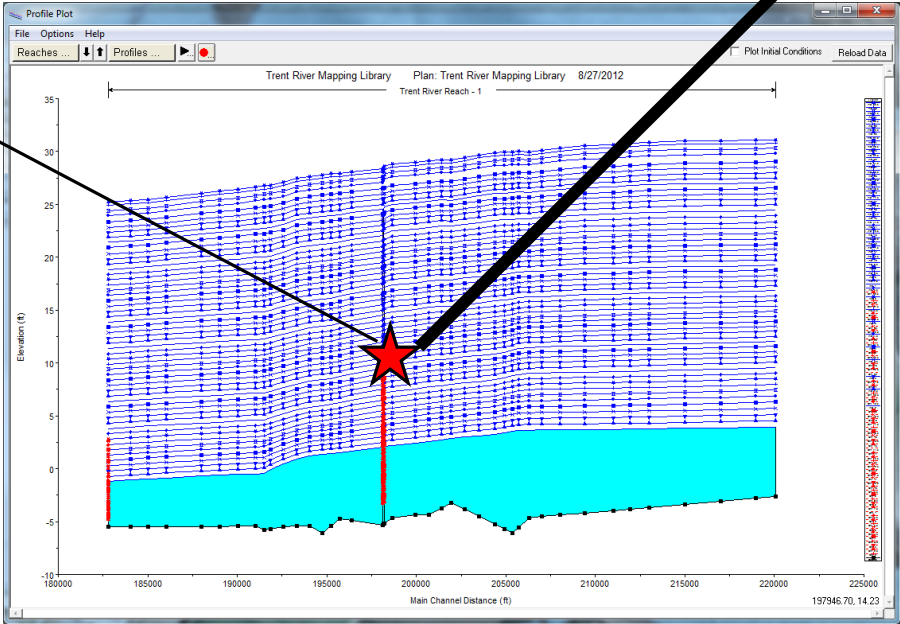


How do you make one?

- 1. Start with Hydraulic Model for Stream /River
- 2. Perform Iterative Modeling for all “Stage Targets”

“Stage” target in each model.

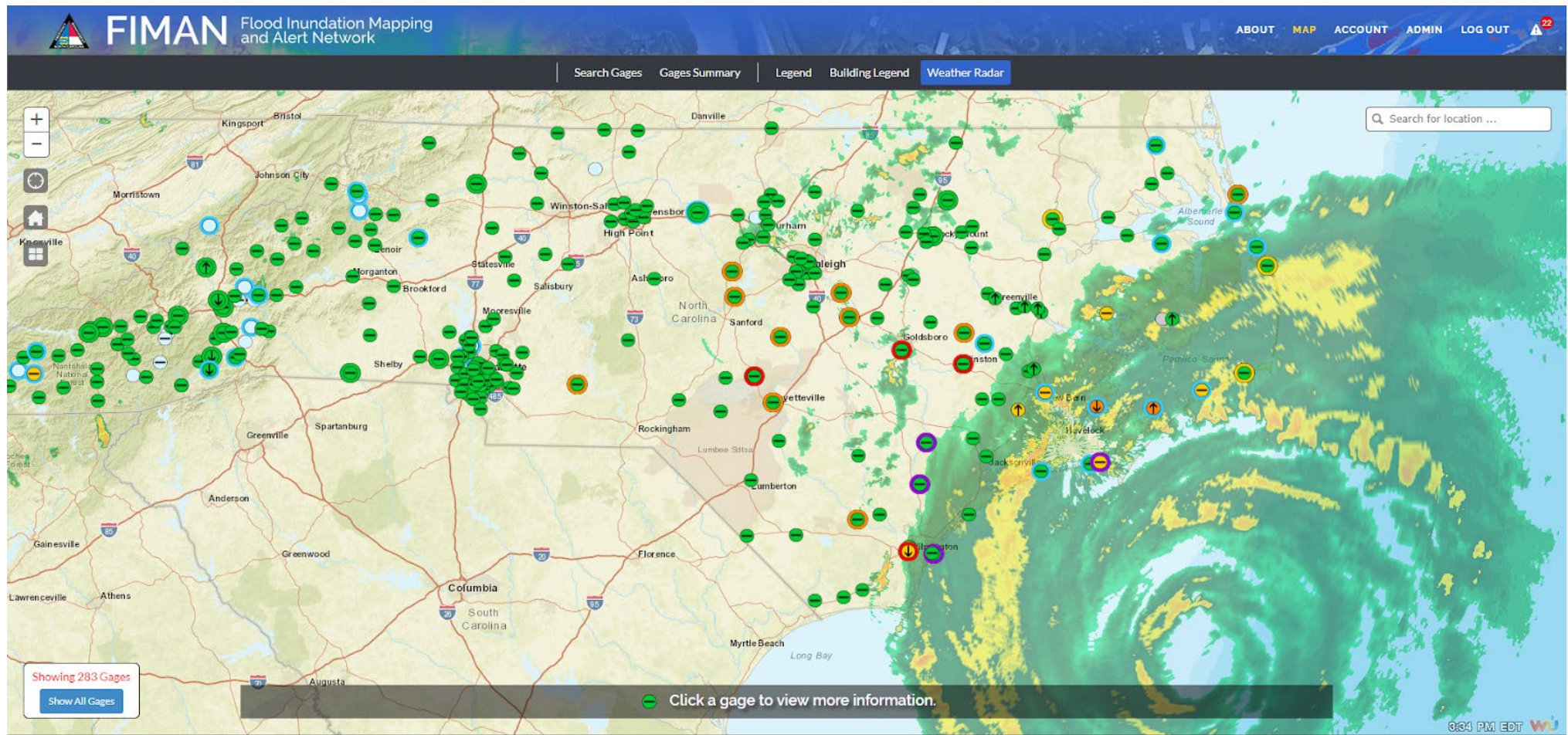
This is station location



Reach	River Sta	Profile	W.S. Elev (ft)	Q Total (cfs)
Reach - 1	198164.38R D	7.5	7.50	1435.01
Reach - 1	198164.38R D	8	8.00	1563.01
Reach - 1	198164.38R D	8.5	8.50	1698.01
Reach - 1	198164.38R D	9	9.00	1838.01
Reach - 1	198164.38R D	9.5	9.50	1980.01
Reach - 1	198164.38R D	10	10.00	2130.01
Reach - 1	198164.38R D	10.5	10.50	2285.01
Reach - 1	198164.38R D	11	11.00	2450.01
Reach - 1	198164.38R D	11.5	11.50	2625.01
Reach - 1	198164.38R D	12	12.00	2805.01
Reach - 1	198164.38R D	12.5	12.50	2995.01
Reach - 1	198164.38R D	13	13.00	3195.01
Reach - 1	198164.38R D	13.5	13.50	3395.01
Reach - 1	198164.38R D	14	14.00	3615.01
Reach - 1	198164.38R D	14.5	14.50	3842.01
Reach - 1	198164.38R D	15	15.00	4080.01
Reach - 1	198164.38R D	15.5	15.50	4330.01
Reach - 1	198164.38R D	16	16.00	4595.01
Reach - 1	198164.38R D	16.5	16.50	4875.01
Reach - 1	198164.38R D	17	17.00	5160.01
Reach - 1	198164.38R D	17.5	17.50	5460.01
Reach - 1	198164.38R D	18	18.00	5775.01
Reach - 1	198164.38R D	18.5	18.50	6105.01
Reach - 1	198164.38R D	19	19.00	6450.01
Reach - 1	198164.38R D	19.5	19.50	6815.01
Reach - 1	198164.38R D	20	20.00	7230.01
Reach - 1	198164.38R D	20.5	20.50	7660.01
Reach - 1	198164.38R D	21	21.00	8075.01
Reach - 1	198164.38R D	21.5	21.50	8590.01
Reach - 1	198164.38R D	22	22.00	9140.01
Reach - 1	198164.38R D	22.5	22.50	9715.01
Reach - 1	198164.38R D	23	23.00	10300.01
Reach - 1	198164.38R D	23.5	23.50	10920.01
Reach - 1	198164.38R D	24	24.00	11500.01
Reach - 1	198164.38R D	24.5	24.50	12190.01
Reach - 1	198164.38R D	25	25.00	12830.01
Reach - 1	198164.38R D	25.5	25.50	13550.01
Reach - 1	198164.38R D	26	26.00	14270.01
Reach - 1	198164.38R D	26.5	26.50	15040.01
Reach - 1	198164.38R D	27	27.00	16005.01

Example Flood Warning System: NC FIMAN

Item 2.



Example Flood Warning System: NC FIMAN

Item 2.

FIMAN Flood Inundation Mapping and Alert Network

ABOUT MAP ACCOUNT LOG OUT

Search Gages Gages Summary Legend **Building Legend** Weather Radar

Northeast Cape Fear River near Burgaw Buildings in Inundation Extent

Current Stage: 16.9 Ft

Damages Buildings

Current Flood Depth	Total		Residential		Commercial		Public	
	Damaged	Est. Damages	Damaged	Est. Damages	Damaged	Est. Damages	Damaged	Est. Damages
Sub Structure	119	\$209,000	117	\$205,000	2	\$4,000	0	\$0
0 - 1 ft	31	\$245,000	29	\$236,000	2	\$9,000	0	\$0
1 - 2 ft	26	\$363,000	25	\$302,000	1	\$500	0	\$0
2 - 3 ft	15	\$358,000	15	\$358,000	0	\$0	0	\$0
3 - 4 ft	22	\$548,000	21	\$527,000	1	\$21,000	0	\$0
4 - 5 ft	7	\$175,000	7	\$175,000	0	\$0	0	\$0
> 5 ft	2	\$125,000	2	\$125,000	0	\$0	0	\$0
TOTAL	222	\$2,023,000	216	\$1,989,000	6	\$34,000	0	\$0

- Additional buildings may be impacted outside of the inundation extent.
- This table reflects counts of buildings inside the FIMAN inundation extent where structural damages (\$) may occur. Additional buildings may be shown (color coded) in the map indicating buildings inside the inundation extent that may not sustain structural damages due to elevated first floor elevations or site-specific conditions.

Zoom In to See Buildings Affected

Flood Height

- > 5 Ft
- 4 - 5 Ft
- 3 - 4 Ft
- 2 - 3 Ft
- 1 - 2 Ft
- 0 - 1 Ft
- < 0 Ft

Showing 377 Gages

Show All Gages

Current Scenario Forecast

Northeast Cape Fear River near Burgaw

Last updated: Sep 16, 2018 at 12:30 PM Gage datum: -0.9ft NAVD88 Site ID: 02108566

Stage: 16.9 ft
15.9 ft NAVD88

Stream Elevation

Rising

Peak Stage: 24.2 ft
9/20 8:00 AM
No Data Available

Forecasted Peak

222 buildings damaged
\$2,023,000

Damages

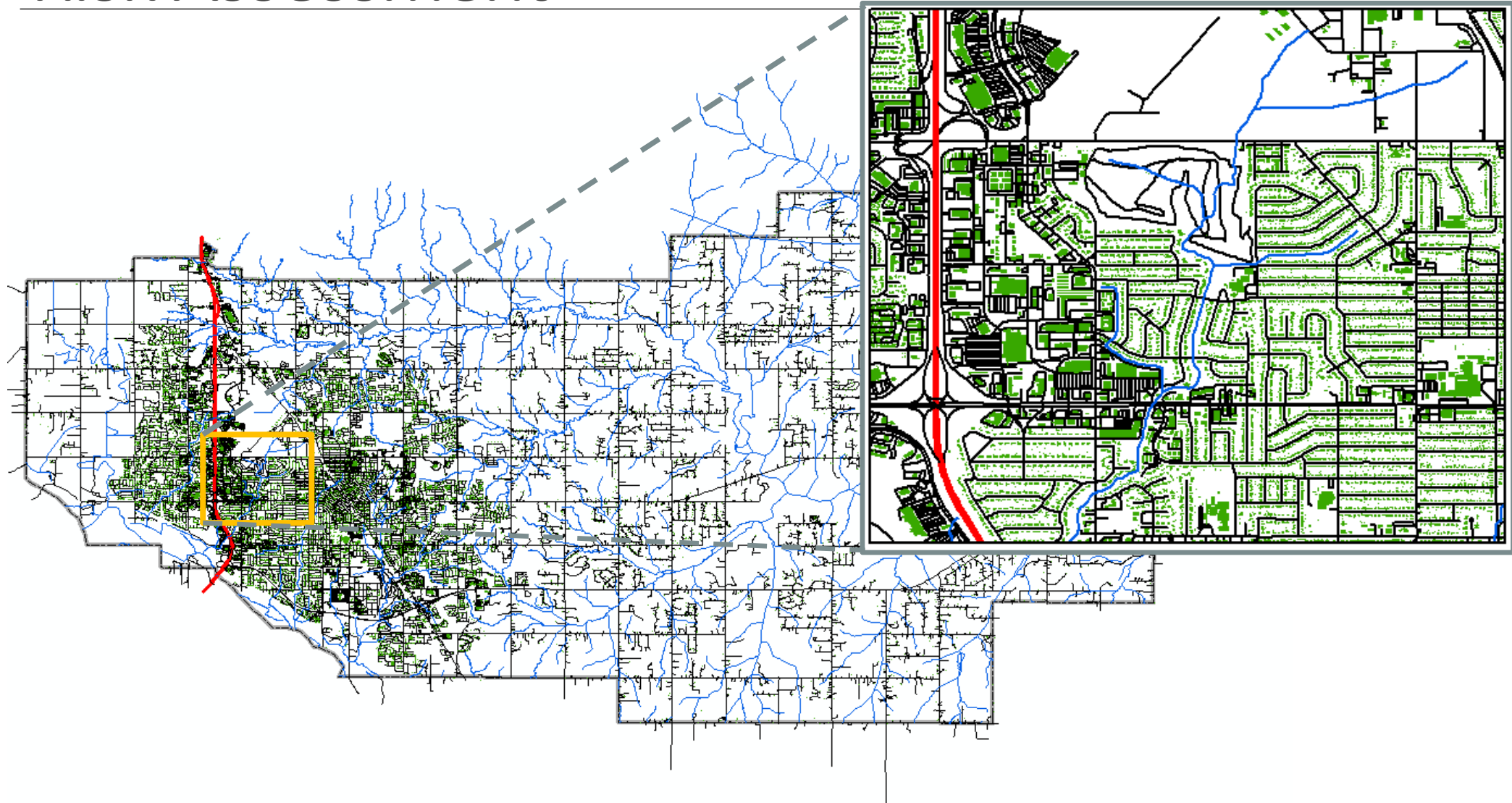
Impact

Norman Flood Warning: Phase 1

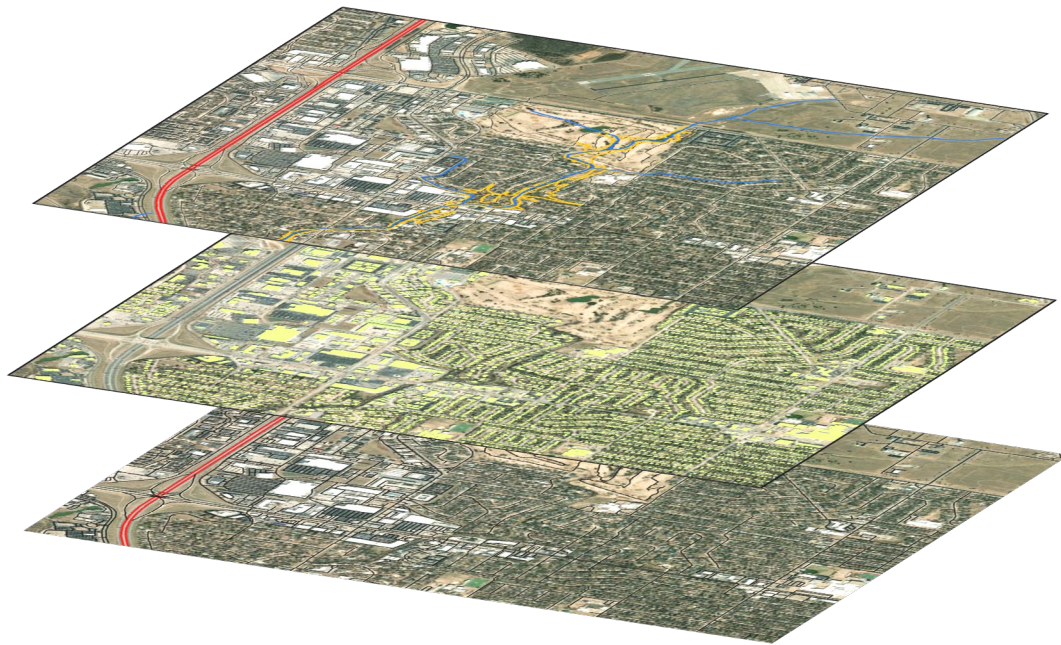
- October 2022: Meshek Awarded Contract for Flood Warning System Project Scoping
 - Phase 1 Flood Warning System:
 - Task 1: Develop Assessment Standards
 - Task 2: Document Current Emergency Management Standard
 - Task 3: Assess Traffic and Development Information
 - Task 4: Development of Flood Warning System Requirements & Location Priority
 - Task 5: Report and Implementation Plan
- July 2023: Phase 1 Deliverables Submitted Final
- Fall 2023: Phase 2 Scope Development

Risk Assessment

Merkle Creek



Hazards and Vulnerabilities



Risk - Flooding



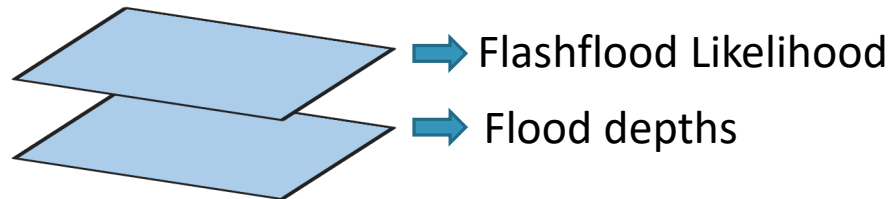
Vulnerability - Buildings



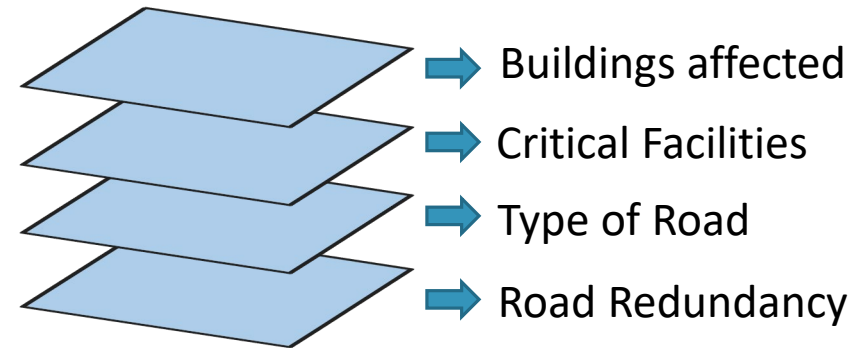
Vulnerability - Roads

Hazards and Vulnerabilities

Hazards



Vulnerabilities



Repeat for each stream/location

Geospatial Analysis

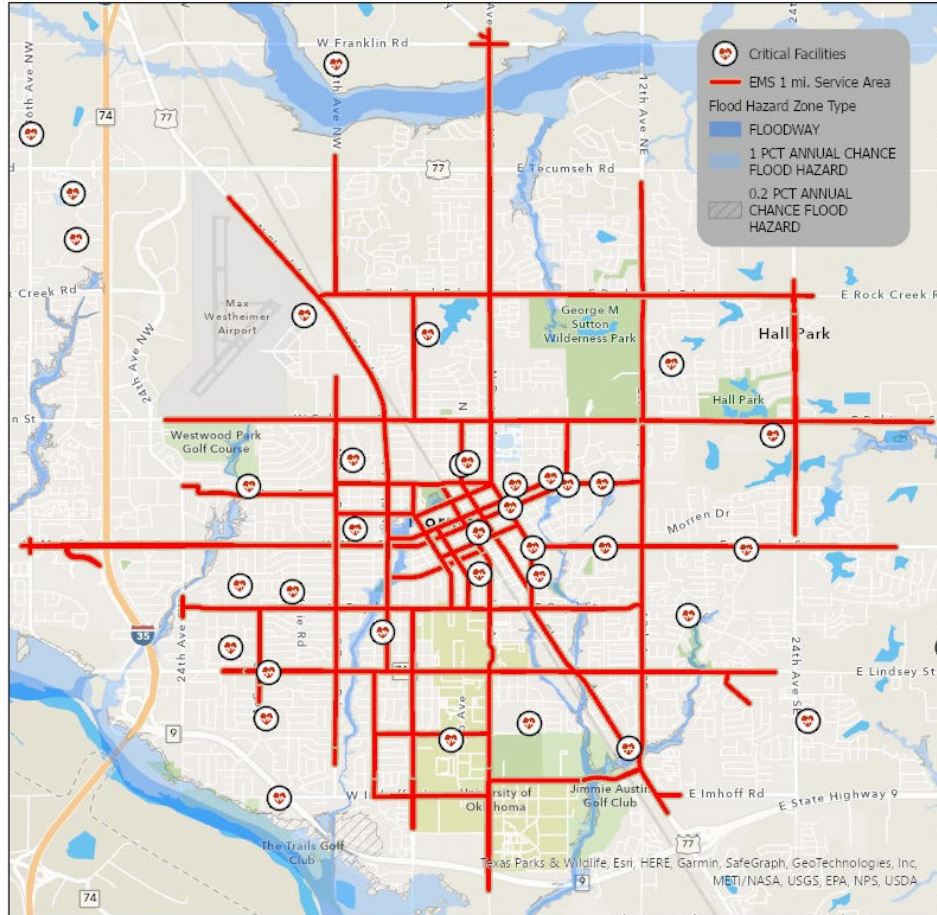


Figure 1. Network Connectivity for Critical Facilities

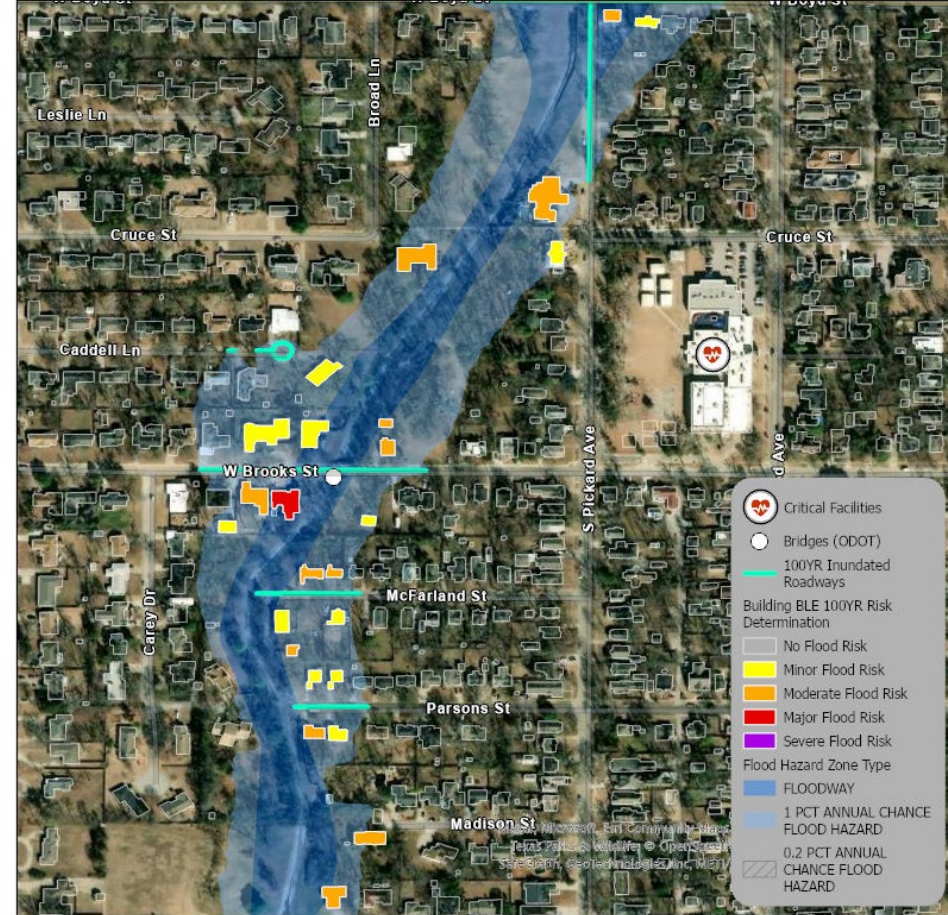


Figure 2. At Risk Buildings

Imhoff Creek

I1: Culvert on W. Main St.



Figure 1. Culvert over Imhoff Creek at location I1.

Synthetic Hydrograph

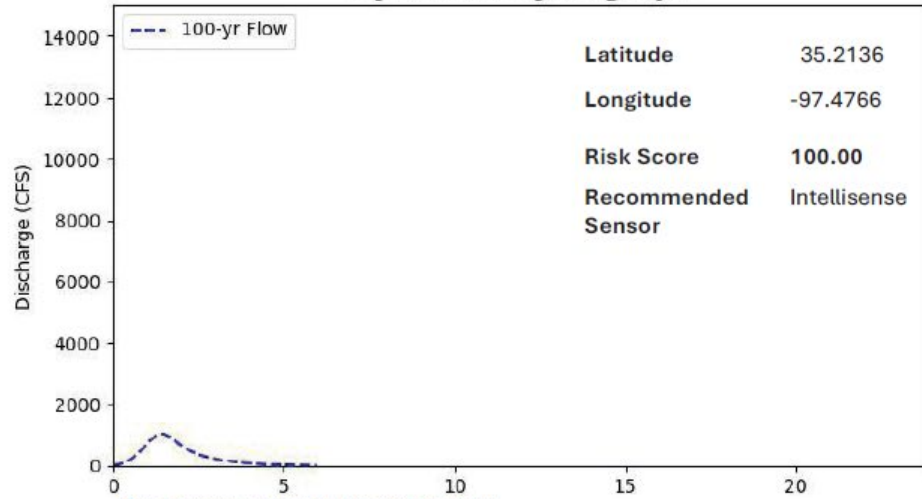
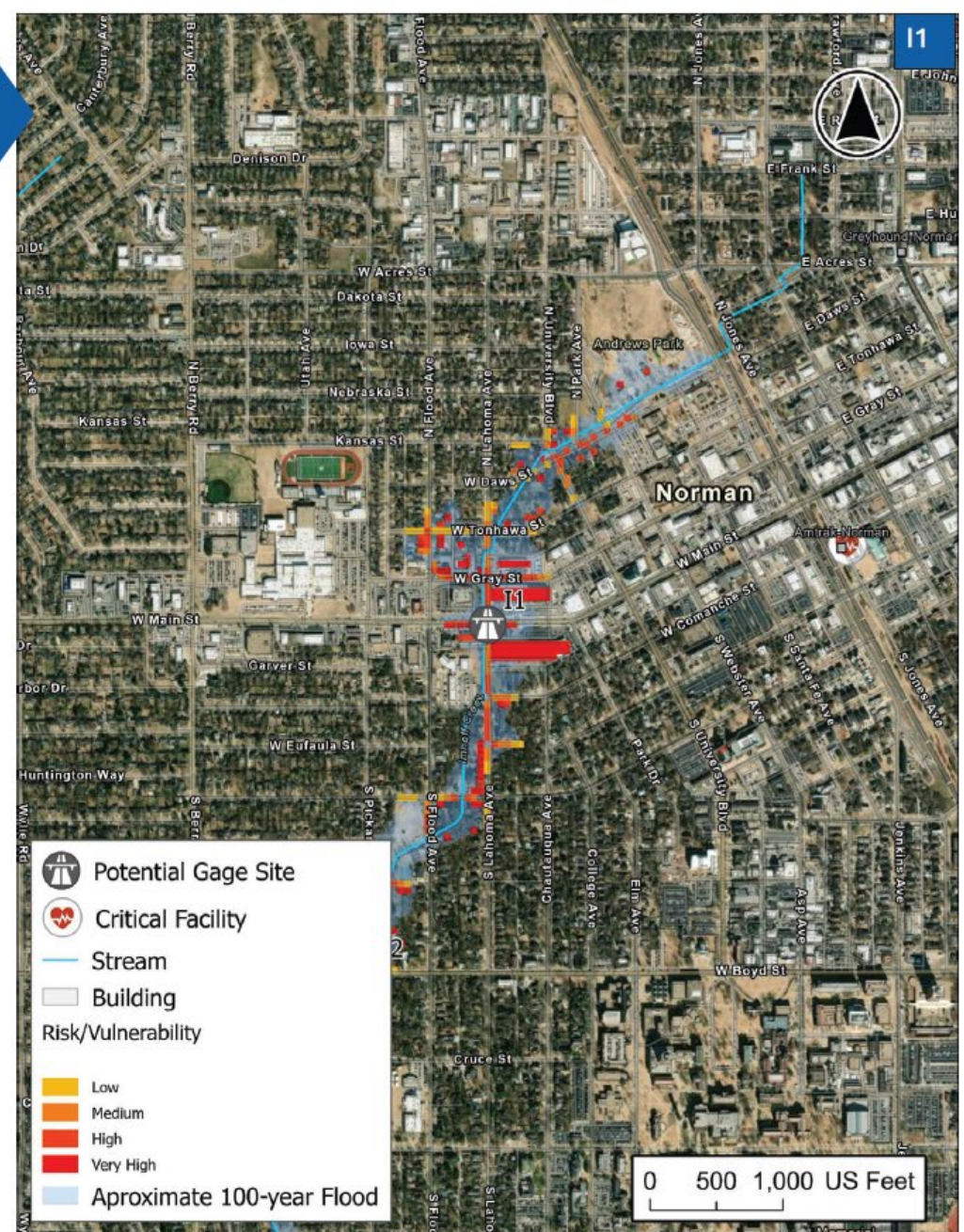


Figure 2. Approximated hydrograph generated for location I1.



Item 2.

Ten Mile Flat

BG1: Culvert on 60th Ave NW.



Figure 1. Culvert over Boggy Creek at location BG1.

Synthetic Hydrograph

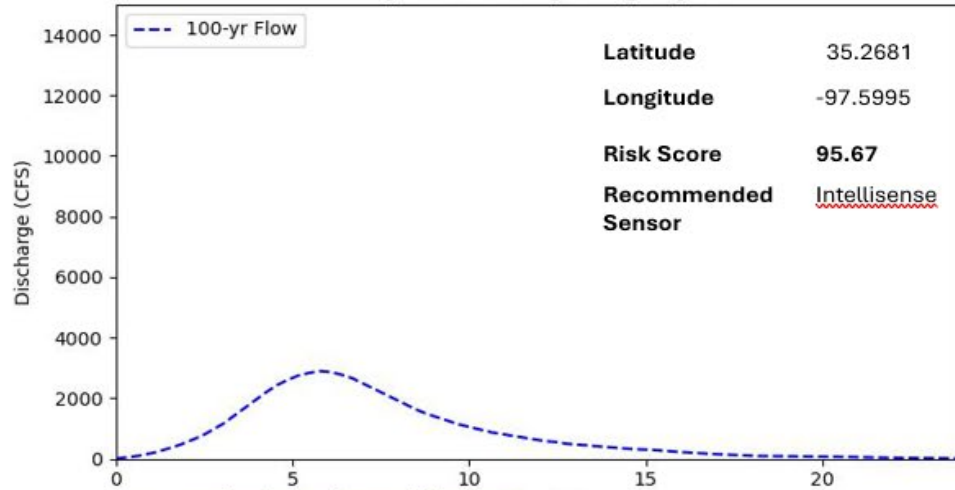
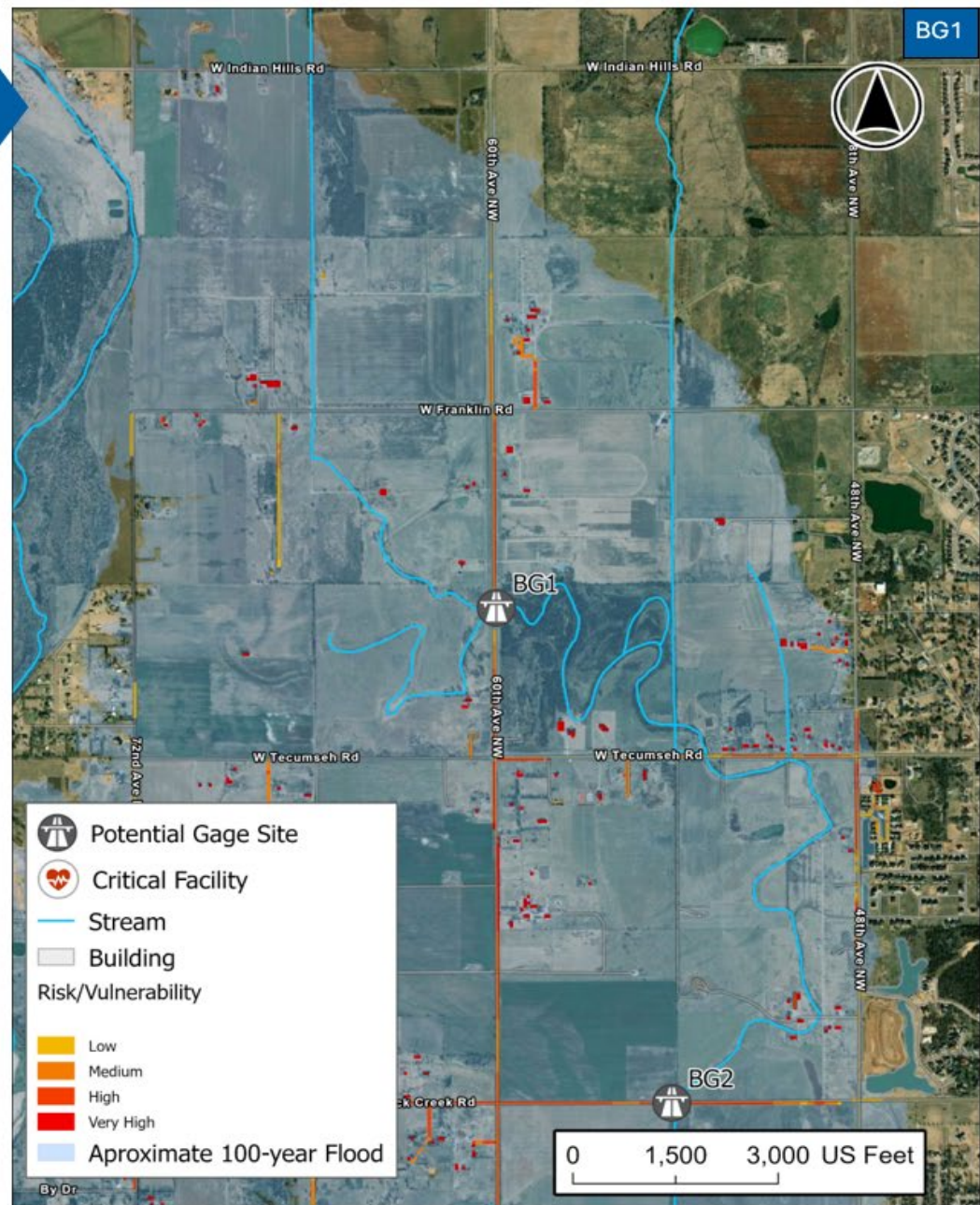
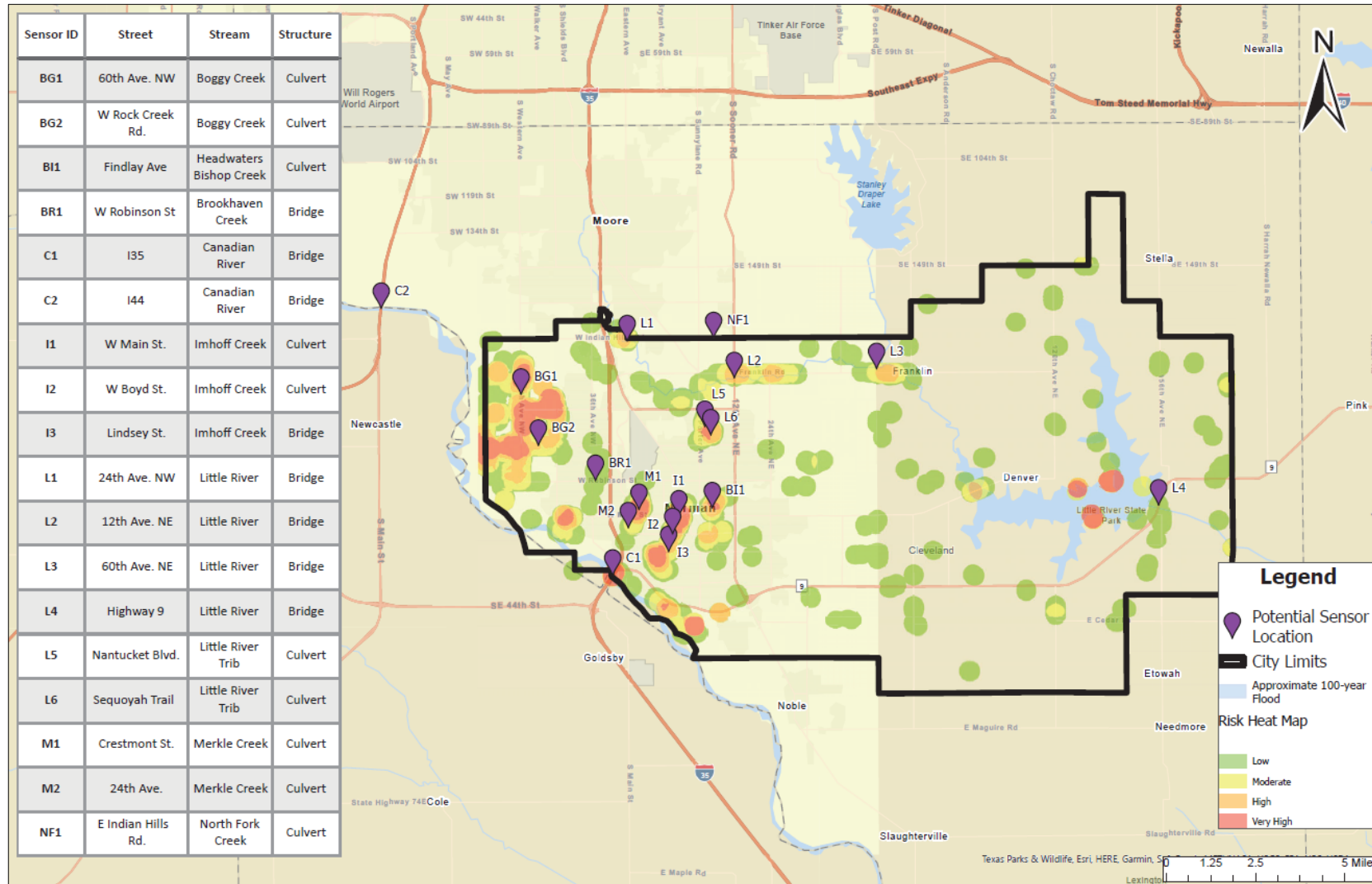


Figure 2. Approximated hydrograph generated for location BG1.



Item 2.

Sensor Location Prioritization



Sensor Type Recommendation

IntelliSense

- ✓ Unit cost is \$4k +/- per unit (vs \$25 - \$30k)
- ✓ Rain sensors and optional cameras
- ✓ Integrated Solar power. Can operate 7-10 days without charge.
- ✓ Rugged and Lockable
- ✓ Automatically Detects Flash Floods
- ✓ Uses a cloud-based operating system / IoT

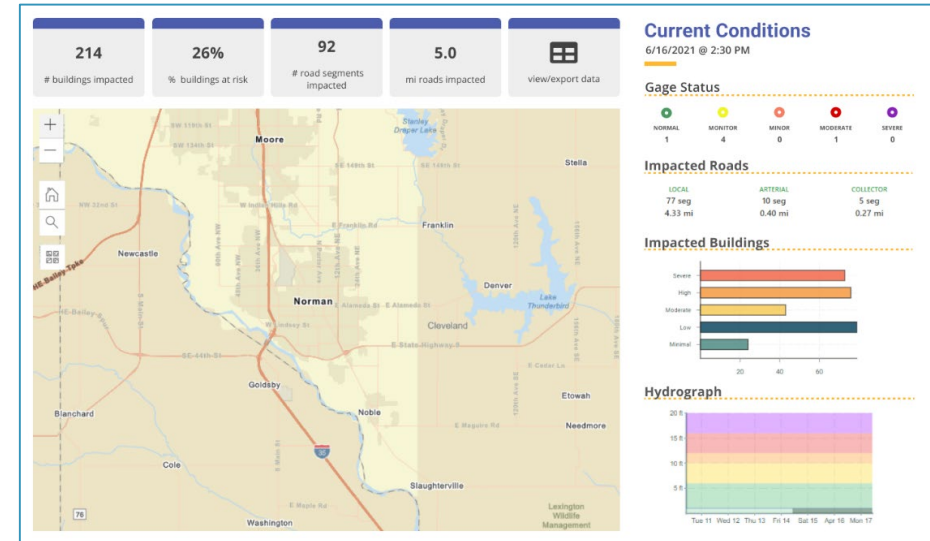


Phase 2 Overview

Flood Warning Application

Item 2.

- Site Users: Public, Stakeholders, Emergency Managers
- Sensors: Recommended Low Costs Intellisense AWARE Flood Warning Sensors
- Real Time Stream Stage and Water Elevations – 25 locations Citywide
- Enterprise Flood Warning Database Development
- Perform Inundation Library Development. Modeling + Inundation Mapping + Impact Assessment
- Real Time and Scenario Based Mapping and Impact Analysis
 - Floodplain Extent
 - Buildings Impacted
 - Roadways Impacted



Current Conditions - 06/16/2021
Building Details Report

Summary | Gage Summary | **Building Data** | Road Data

Building ID	Address	Year Built	FEMA Stream	Community	Watershed
190456924818	1112 GREENLEAF AV	1904	Invin Creek	Charlotte	IRWIN
190655794475	1117 GREENLEAF AV	1905	Invin Creek	Charlotte	IRWIN
190562565343	1016 MARGARET BROWN ST	1905	Invin Creek	Charlotte	IRWIN
193930232445	617 MAIN ST	1935	Sugar Creek	Pineville	SUGAR
193906254277	1000 - 1001 BLYTHE BV	1939	Upstream FEMA Floodplains (Local Drainage)	Charlotte	UPPER LITTLE SUGA
192056923452	825 BELMONT AV	1920	Little Sugar Creek	Charlotte	UPPER LITTLE SUGA
193633871988	523 MAIN ST	1935	Sugar Creek	Pineville	SUGAR
194088125482	379 RIDGWOOD AV	1940	Little Sugar Creek	Charlotte	UPPER LITTLE SUGA
194816056629	2640 SHERMANODAH AV	1948	Briar Creek	Charlotte	BRIAR
194832371407	823 SELDON DR	1948	Stewart Creek	Charlotte	IRWIN

Close | **Export to Excel**

Additional Benefits of Flood Warning Systems

- Efficient Post Event Damage Assessments
- Benefit Cost Analysis Calculations
- FEMA Grant Applications
- Hazard Mitigation Planning and Exercises
- Emergency Response
- Community Rating System (CRS)

Next Steps



- Secure federal grant for Flood Warning System Implementation
- City Council considers contract amendment with Meshek & Associates for Phase II of Flood Warning System
- Coordinate Flood Warning System with Traffic Management Center (TMC)
- Final Implementation of Flood Warning System 2025

Questions / Discussion

Thank you



MEMO TO: Council Community Planning and Transportation Committee
FROM: Scott Sturtz, P.E., CFM, City Engineer
THROUGH: Shawn O'Leary, P.E., CFM, Director of Public Works
DATE: October 26, 2023
SUBJECT: Project Update James Garner Avenue Phase 2- Acres Street to Flood Avenue

Background

The Oklahoma Department of Transportation conducted a bid opening on October 20, 2022, for the James Garner Avenue Norman Forward Project. The low bidder was Redlands Contracting, LLC of Warr Acres, Oklahoma, with a construction cost of \$7,820,000. Approximately \$4.8 million of this will be paid from federal grant funds. The remainder is paid for with Norman Forward funding.

ODOT awarded the project on November 7, 2022. This project has a 460-calendar day construction schedule, which will likely result in summer 2024 completion. The Oklahoma Department of Transportation is administering the construction of this project, with the assistance of Smith Roberts Baldischwiler, which is a private construction management firm.

The project involves the following items:

- Construction of a new roadway extension of James Garner Avenue beginning from just north of Acres Street adjacent to the Norman Municipal Library and extending north of Robinson Street to connect to Flood Avenue.
- New multi-lane roundabout intersection between the Flood Avenue and the new James Garner extension
- A new vehicular and pedestrian bridge over Robinson Street with aesthetics honoring James Garner as the roadway's namesake.
- Reconstruction and extension of the Legacy Trail with improved pedestrian lighting.
- Low Impact Development such as plantings and landscaping in the roadway medians and at bridge abutments to filter runoff and help prevent erosion.
- Reconfigured connections between local streets from Johnson Street to Himes Street.
- Decorative roadway lighting and landscaping.

Updates

As of the last pay application on 9/30/2023, 33% of the total contract amount has been expended. Through 8/31/23, 34% of the contract time had expired.

The contractor is currently working on the following construction items this week and next week:

- Continue construction of Legacy Trail south of Robinson Street
- Drill and pour bridge pier shafts

The primary focus of work over the next few months will be the bridge construction over Robinson Street, by sub-contractor, Treas Construction. During this time frame, Redlands Contracting will be working on paving James Garner north of Robinson Street, continued Legacy Trail construction, final grading and sodding of completed areas. One of the very last items of work will be to construct the new roundabout that connects the new James Garner segment of roadway to Flood Avenue.



MEMO TO: Council Community Planning and Transportation Committee

FROM: Scott Sturtz, P.E., CFM, City Engineer *SS*

THROUGH: Shawn O'Leary, P.E., CFM, Director of Public Works *S*

DATE: October 26, 2023

SUBJECT: Project Update Porter Avenue Streetscape- Alameda Street to Robinson Street

Background

On April 2, 2019, the citizens of Norman voted in favor of a Bond Issue to finance the local share of nineteen (19) transportation improvement projects. One of the nineteen bond projects is the Porter Avenue Streetscape Project. The Porter Avenue Streetscape Project consists of design and construction of streetscape elements along the Porter Avenue corridor between Robinson Avenue on the north and Alameda Street on the south. The total construction cost for the project is approximately \$5.1 million. Of that, approximately \$2.8 million will be paid by federal grant. The remaining \$2.3 million will be paid for through the City of Norman 2019 Bond Program.

The Oklahoma Department of Transportation conducted a bid opening on October 20, 2022, for the Porter Avenue Streetscape Bond Project. The low bidder was SAC Services, Inc. of Oklahoma City, Oklahoma. ODOT awarded the project on November 7, 2022. This project is expected to be complete in Spring of 2024. The Oklahoma Department of Transportation is administering the construction of this project, with the assistance of Atkins North America, Inc., which is a private construction management firm.

Proposed improvements include:

- New sidewalks
- Driveway consolidation or elimination (access management)
- Decorative roadway and pedestrian lighting
- Landscaping
- New curb and gutter
- New Decorative Traffic Signals
- Pedestrian safety improvements

Updates

As of the last pay application on 8/31/2023, 28% of the total contract amount has been expended. Through 8/31/23, 59% of the contract time has been expended. City staff anticipate that all of the hard scape components of the project will be completed in early 2024 and the plant installations will occur in early spring 2024 to complete the project.

The contractor is working on the following construction items this week:

- Complete sidewalk paving at various locations left open for electrical and irrigation installation
- Remove and reconstruct Rich Street east side intersection paving
- Storm Sewer Construction Between Frank Street and Johnson Street east side
- Reconstruct curbs, sidewalk and decorative paving between Hughbert St. and Johnson St. east side

As the above-mentioned east side work is completed, the contractor will continue working on the east side moving northward, block by block to the end of the project at Robinson Street. When the east side is complete, the contractor will move to the west side of the project doing the same sidewalk, curb, street light poles bases, etc. between Robinson Street to Hughbert Street. Once all of the sidewalk and curb work is completed, the roadway surface will receive a mill and overly with new pavement marking installations. Street lighting and traffic signal installations will occur as soon as items are available. Planter and tree installations will likely both occur toward the end of the project.

Porter Avenue Streetscape And James Garner Avenue Phase 2 Construction Updates

Community Planning & Transportation Committee
Thursday, October 26, 2023

Porter Avenue Streetscape

Item 3.

Project Summary

- New sidewalks
- Driveway consolidation (access management)
- Decorative roadway and pedestrian lighting
- Landscaping (trees, planter boxes, colored stamped concrete)
- New curb and gutter
- New decorative traffic signals
- Pedestrian safety improvements
- Pavement mill and overlay with new pavement markings



Porter Avenue Streetscape



Porter Avenue Streetscape

Substantially Completed Areas



Comanche Street looking south on west side



Main Street looking north on east side

Porter Avenue Streetscape

Area Under Construction



Rich Street looking south on east side



Rich Street looking north on east side

Porter Avenue Streetscape



Porter Avenue Streetscape



James Garner Phase 2

Project Summary

- James Garner Avenue (JGA) creates a new, uninterrupted corridor into to downtown Norman from Flood Avenue. This phase stretches from just north of Acres street, adjacent to the new library, north over Robinson Street to a connection with Flood Avenue north of the existing water tower.
- Construction will consist of a new two-lane divided street, a new bridge over Robinson Street and a multi-lane roundabout intersection at Flood Avenue.
- The new corridor will also construct and re-align Legacy Trail to improve pedestrian and bicyclist safety.
- Project will provide an alternative route to downtown in an effort to relieve traffic congestion within nearby neighborhoods and on both Flood Avenue and Porter Avenue.

James Garner Phase 2

Multi-Lane Roundabout

Robinson Street Bridge with Aesthetics

Legacy Trail

Bridge Substructure Under Construction

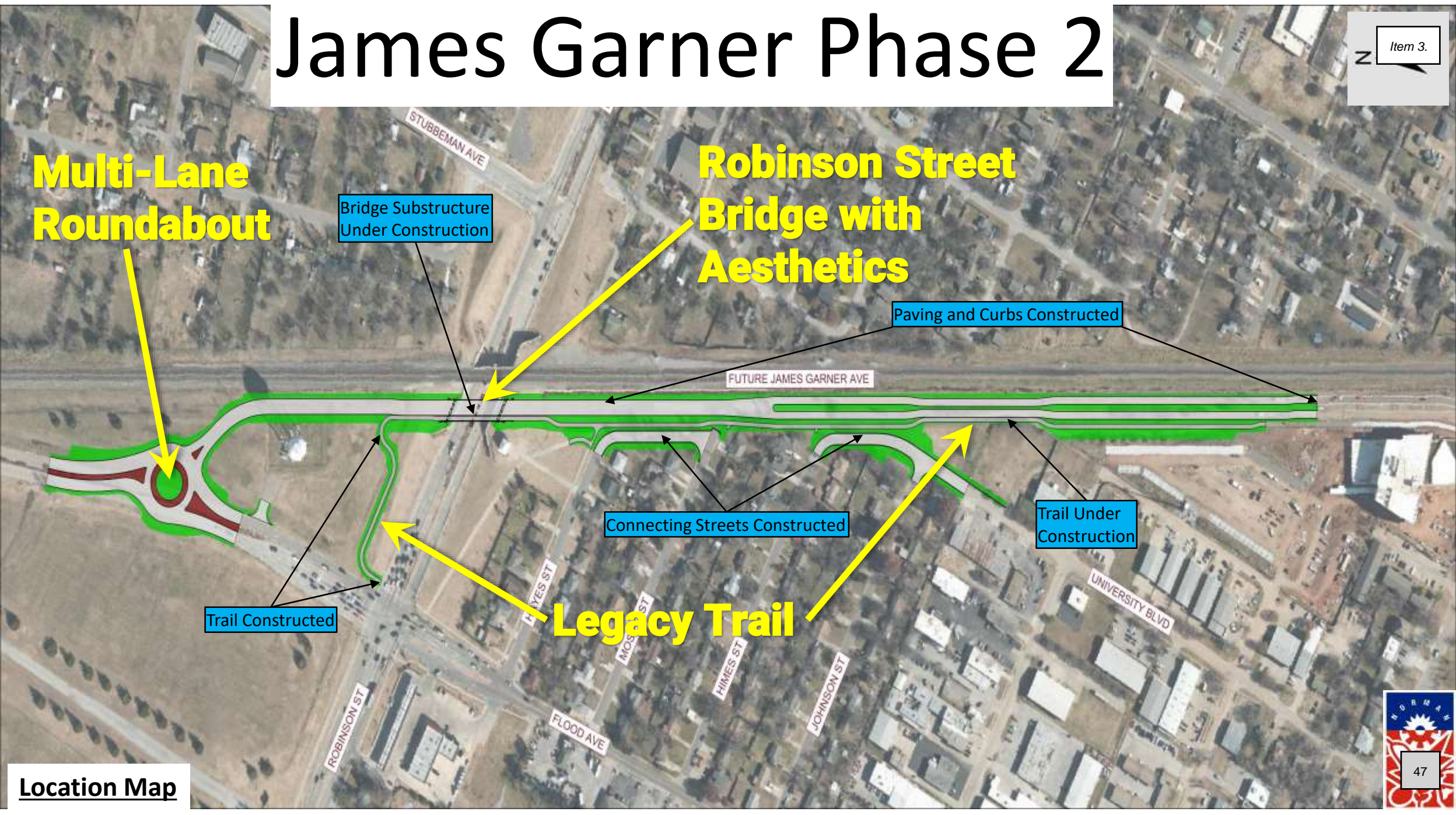
Paving and Curbs Constructed

Connecting Streets Constructed

Trail Under Construction

Trail Constructed

Location Map



James Garner Phase 2

Substantially Completed Areas



New James Garner Avenue looking north from Himes Street



University Boulevard looking north toward Himes Street

James Garner Phase 2

Area Under Construction

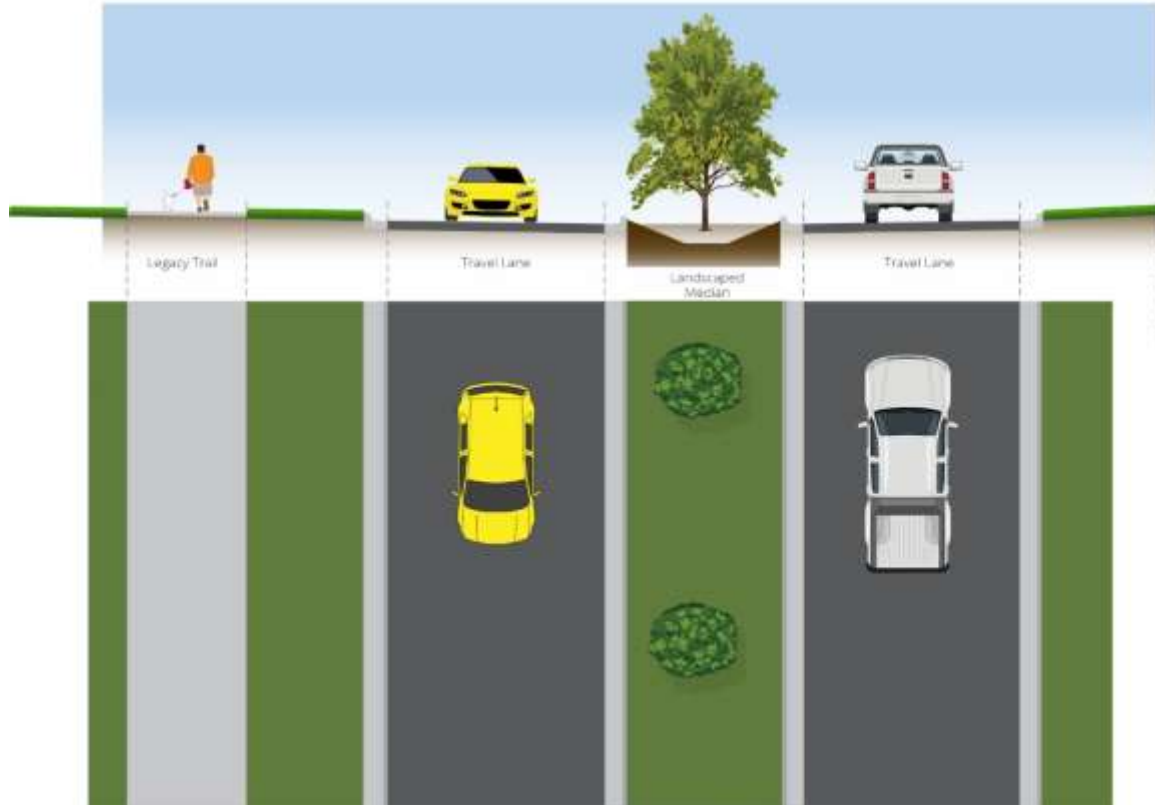
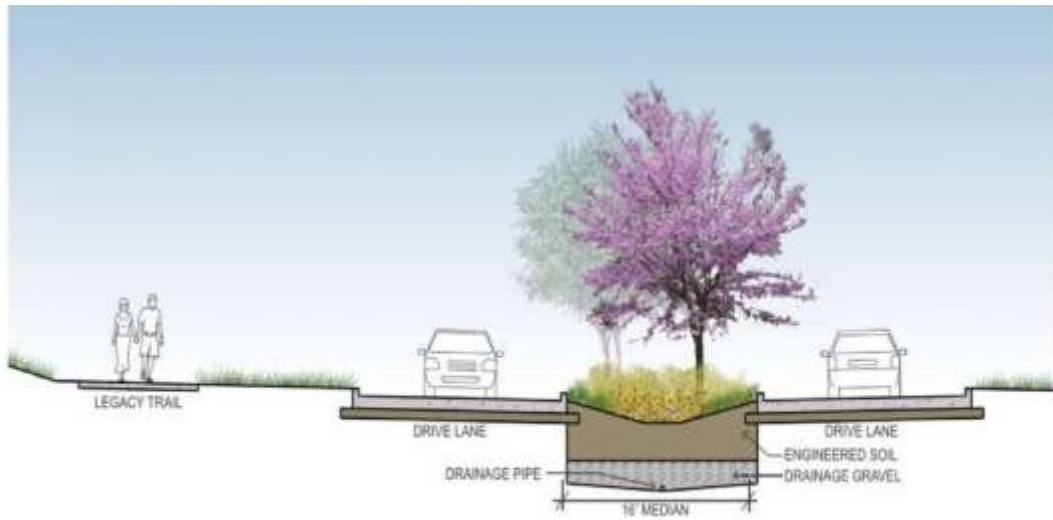


Robinson Street looking northwest at bridge substructure



New James Garner Avenue looking south at Hayes Street

Project Aesthetic Example Item 3.







Beam Letter Back-lighting

Pier Cap Lighting

Pylon Letter Back-lighting

LED Signature Back-light

LEGACY TRAIL

JAMES GARNER AVENUE

NORMAN

James Garner

Questions?