Appendix 1: Source Code List

This section identifies most of the source codes that are responsible for collecting, shuttling, ingesting, and analyzing data. In detail:

- **Collecting** involves acquiring or retrieving data from actual sensors or places where sensor solutions write raw output files. This step runs on the CoA network.
- **Shuttling** delivers these raw output files to their archiving location. Currently, this involves sending raw files to UT CTR, but in the future will involve sending to a CoA-maintained resource.
- **Ingesting** is the process of reading a raw output file and incorporating it into a database. This is necessary to allow the use of the database for analysis purposes. The ingestion process may also reduce data volume by aggregating.
- **Analyzing** is querying, visualizing and manipulating data that's found in the database. The example here is the source code for the Bond Corridor App, which is written in R and runs on a server that hosts a Web-enabling framework called Shiny.

Key examples of source code are listed according to these categories.

Collecting

Name	Description
getPiData.py	Copies the traffic data from the Raspberry Pi to the CoA server
putData.py	Called daily to send the copied files from CoA server to the UT CTR server
wifiTshark.sh	Collects traffic data by using the Tshark package
socrata_wavetronix_call.py	Uses Socrata API to collect Wavetronix data that had been placed there through other processing
gs_getcounts.py	Obtains counts records for one or all GRIDSMART devices for a given date or date range
gs_metadata.py	Obtains metadata for GRIDSMART devices and places it into a preliminary database
city/gridsmart/gs_tables.py	Database table logic for the preliminary database to keep track of devices and movements
city/gridsmart/log_reader.py	Parser for GRIDSMART counts files
city/db_util.py	Utility class for database access
city/log_util.py	Utility class for log output

Shuttling

Name	Description
gs_exportcounts.py	Ships GRIDSMART counts over a date range to a given destination
…	Additional minimal shell scripts

Ingesting

Name	Description
bt_insert_unmatched.py	Inserts unmatched Bluetooth results from daily log files into a database
ctr/bt/bt_tables.py	Database table logic for the ingester
ctr/bt/log_unmatched.py	Log file parser
wt_insert.py	Inserts Wavetronix results from daily log files into a database
ctr/wt/wt_tables.py	Database table logic for the ingester
ctr/wt/log_wavetronix.py	Log file parser
coa/date_dirs.py	Utility class for managing a directory of files containing dates in the filenames
coa/zip_helper.py	Utility class for managing access to files in compressed archives

Analyzing

Name	Description
server.R	Provides the meat code of the application. It reads information from the database, processes it and creates plots and tables for the UI
ui.R	Provides the graphical layout code of the application
global.R	Global variables for server.R
functions.R	Encompasses code for traffic volume tab
bluetooth.R	Encompasses Bluetooth data processing

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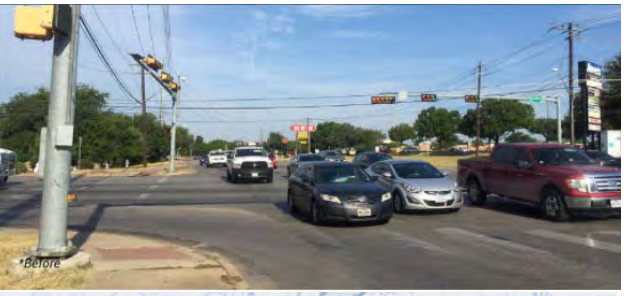
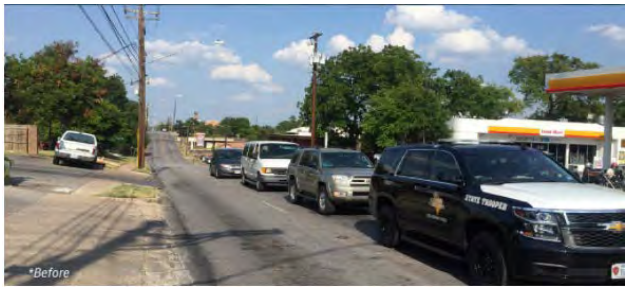
CENTER FOR TRANSPORTATION RESEARCH

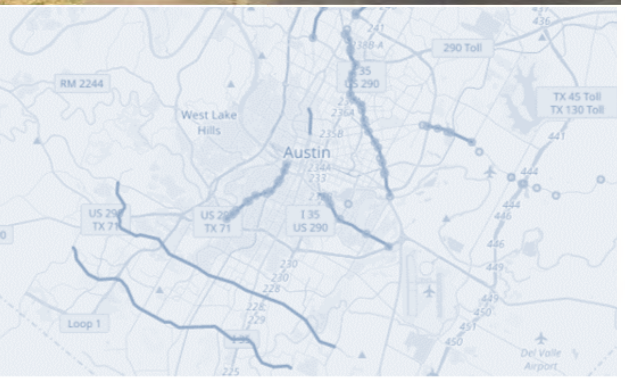
Appendix 2

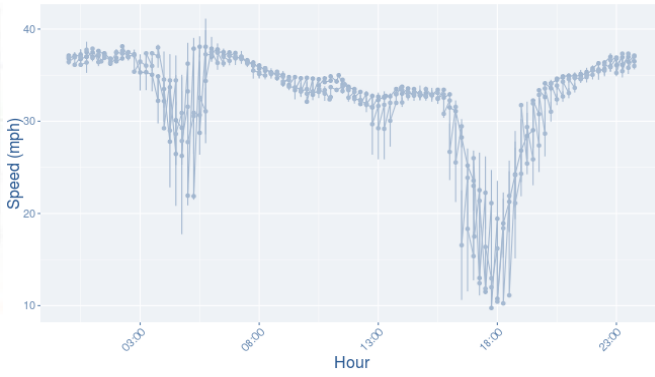
Bond Corridor Performance Analysis

May 10, 2018









Agenda

- 9:30 – Introductions and Overview of CTR Tool Status (CTR)
- 10:00 – Briefing by ATD on overlapping needs (internal/external facing applications) (ATD)
- 10:30 – Discussion
- 11:20 – Wrap-up, set next meeting date

CTR Bond Corridor Analysis Tool

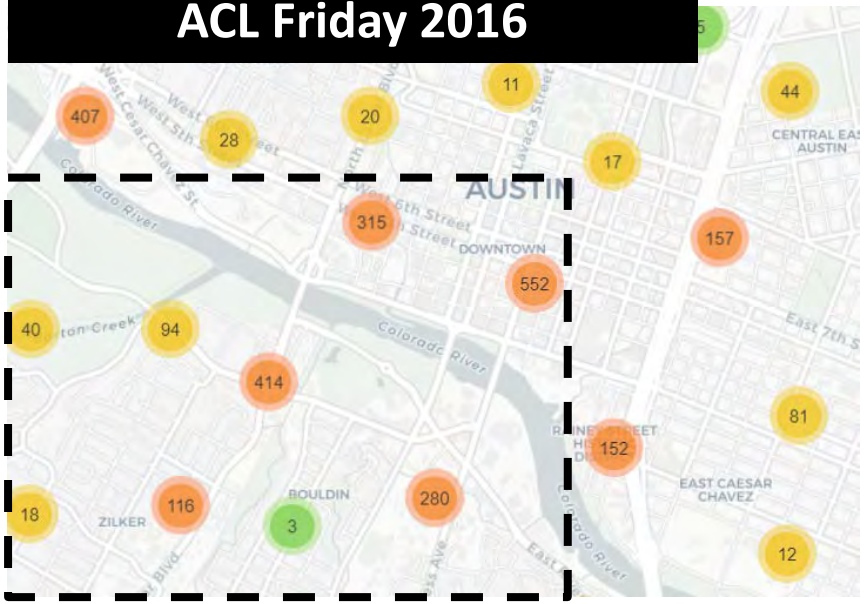
- Overview
- Data sources
- Current capabilities
- Future steps
  - Data architecture
  - Analysis

To be adjusted based on discussion

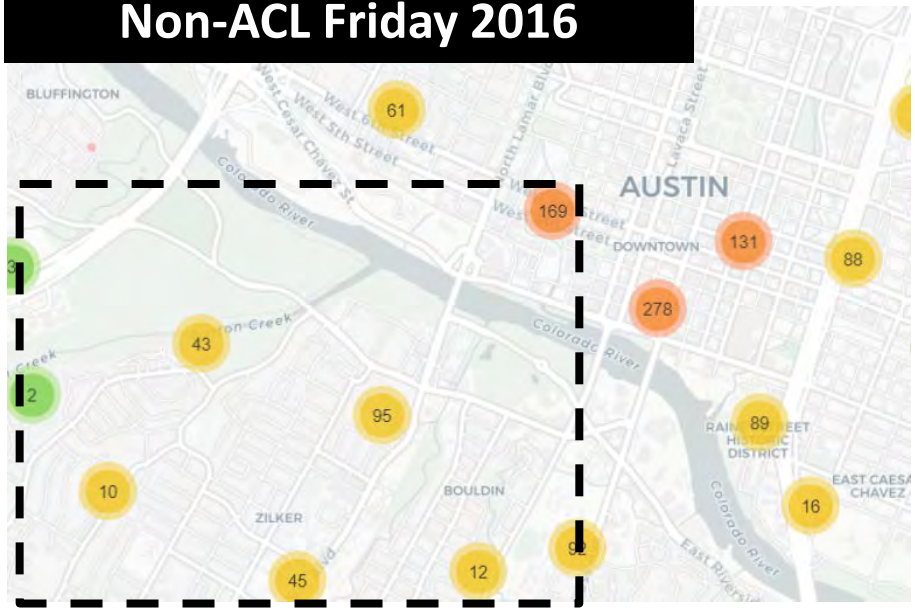
Data Analysis Tool

- Phase 1: pull together data from different sources & visualize changes in data across time periods.
  - This could include analysis of special events
- Phase 2: propose corridor-level metrics that summarize performance changes for evaluation purposes.

Rideaustin pick-ups
ACL Friday 2016



Rideaustin pick-ups
Non-ACL Friday 2016



Guiding Principles

Goal

- Make available meaningful metrics to assess congestion, level of service, and connectivity.

End user

- Engineering practitioners evaluating the corridor performance.

Data

- Facilitate access to manually collected data.
- Prioritize data types and sources expected to be available on a continuous basis.

Methodology

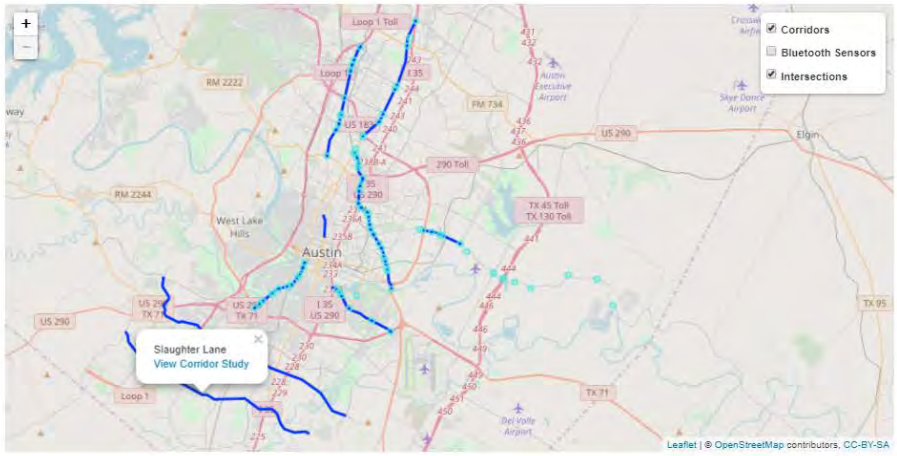
- Transparent data workflows & simple architecture to accommodate changes in data availability.
- Web application approach to facilitate access & use

HDR Corridor Tool

Corridor Summary | Travel Time | Traffic Volume | Speed | Transit

ID	Name	Bluetooth Locations	Wavetronix Locations	Bus Routes	Count Locations
1	North Lamar Boulevard to US Hwy 183	5		24	24
2	Koenig Lane to MoPac Expressway	6	2	14	10
3	US Hwy 183 to Howard Lane	4		15	9
4	US 183 to IH 35	5		19	7
5	US Hwy 183 to Decker Lane	2		1	16
6	Riverside Drive to Ben White Boulevard/US Hwy 290 West	9	4	7	12
7	Martin Luther King Jr. Boulevard to West 29th Street	6		22	
8	Southwest Parkway to McKinney Falls Parkway	7		15	
9	FM 18263 to Vertex Road	2		8	

Previous 1 Next



Automated Data Workflows

Data Sources

Sensors

Bluetooth sensors

Wavetronix

Gridsmart cameras

Traffic cameras

Probe vehicle

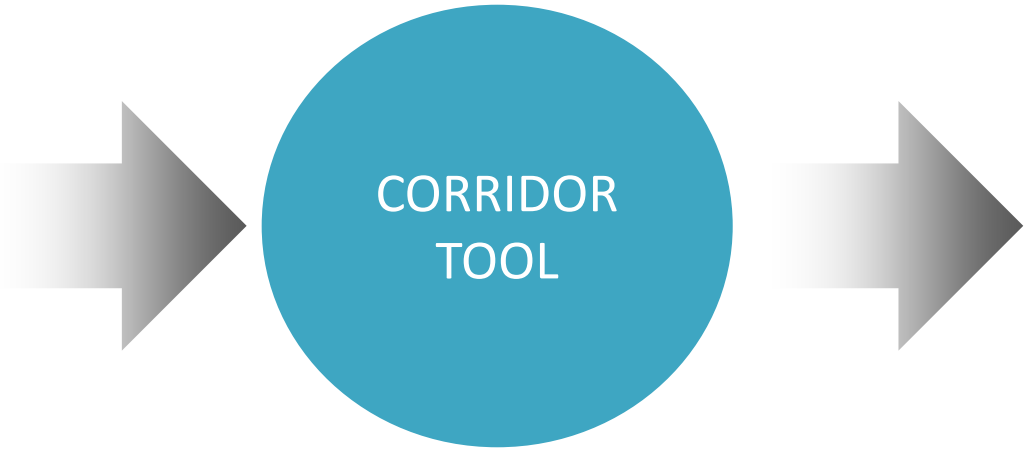
Inrix (segment level)

Transit AVL

Manual

Traffic Count Files

Transit network (GTFS)



Measurable Impacts

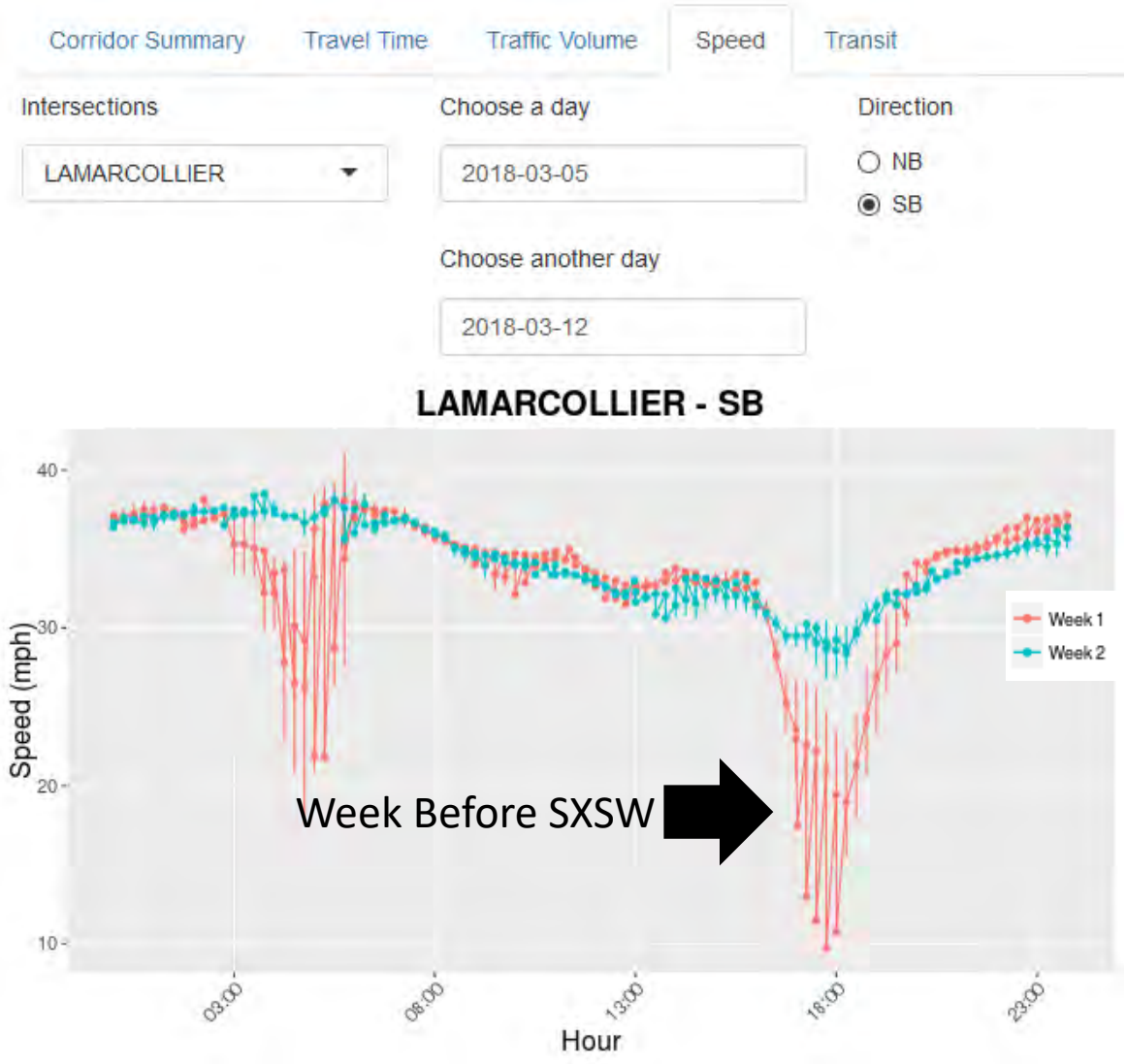
Travel Time

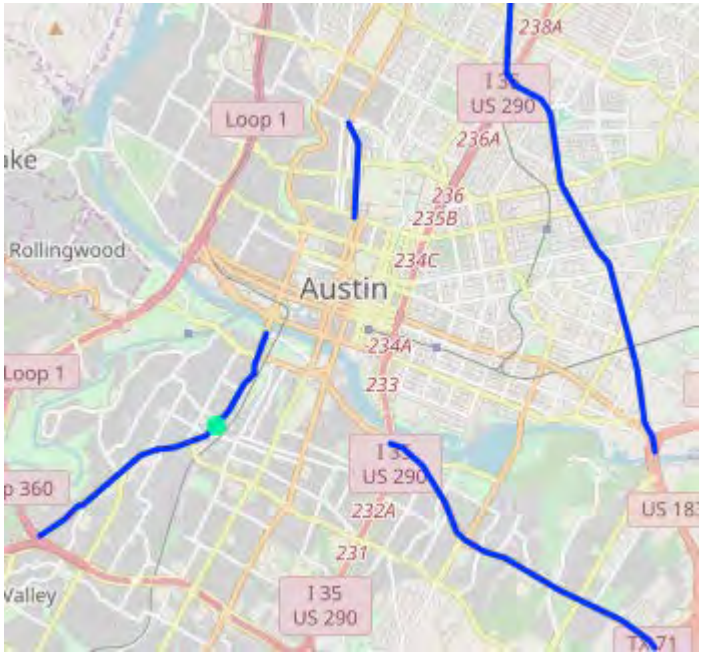
Traffic Volume

Speed

Transit Speed

Results: Comparing SXSW speeds at Collier St.





Speed is BETTER during SXSW

- Location south of downtown
- Spring break

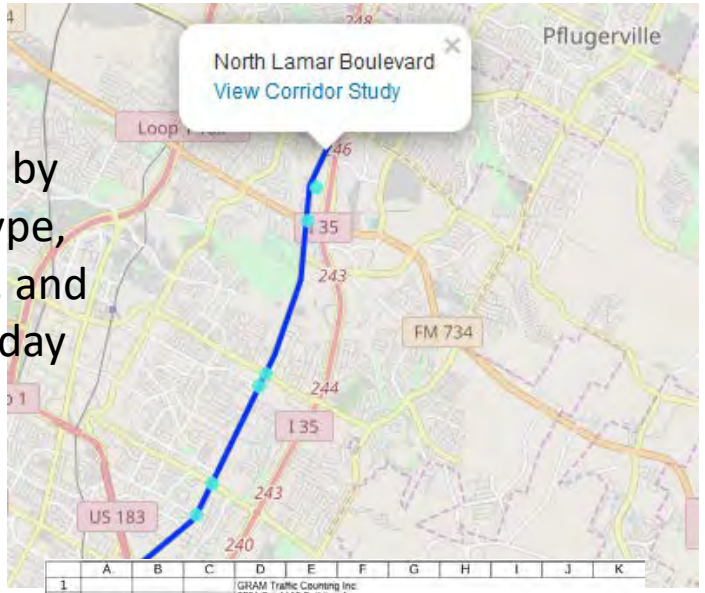
Traffic Studies

1. Choose Data Source

Corridor Su… | Travel Time | Traffic Volume | Speed | Transit

Data source	Count Type	Modality Type	Time of Day
◉ Traffic Studies	☑ Tube	☑ Auto	☑ AM peak
○ Sensor	☑ Turn Movement	☑ Heavy	☑ PM peak
		☑ Pedestrian	☑ Off peak
		☑ Bike	

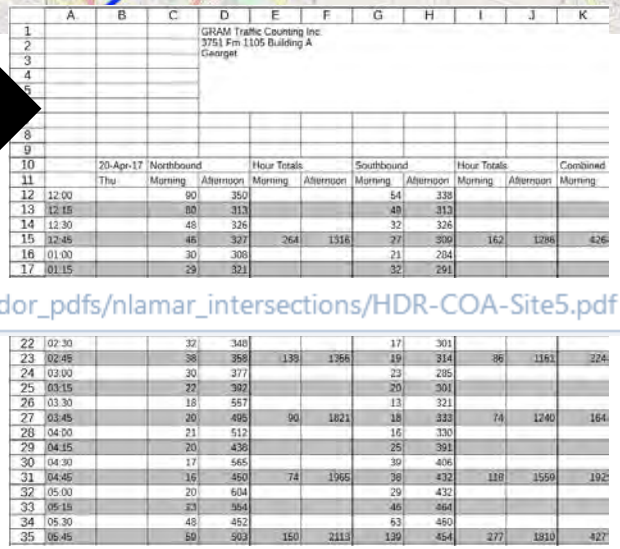
2. Filter by count type, modality, and time of day



Intersection Name	Date	Aggregation (mins)	Source	Link
All	All	All	All	All
N Lamar Blvd and US 183	2011-08-30 2017-04-20		HDR	HDR-COA-Site5.pdf
N Lamar Blvd and US 183	2011-09-14	15	city_pdf	nlamar.pdf
N Lamar Blvd and Payton Gin Rd	2011-09-14	15	city_pdf	nlamar.pdf
N Lamar Blvd and Rundberg Ln	2017-04-19	15	HDR	pm_Heavy Vehicles.pdf
N Lamar Blvd and Rundberg Ln	2017-04-19	15	HDR	HDR-COA-Site21 AM_Heavy Vehicles.pdf

3. Further filtering by date

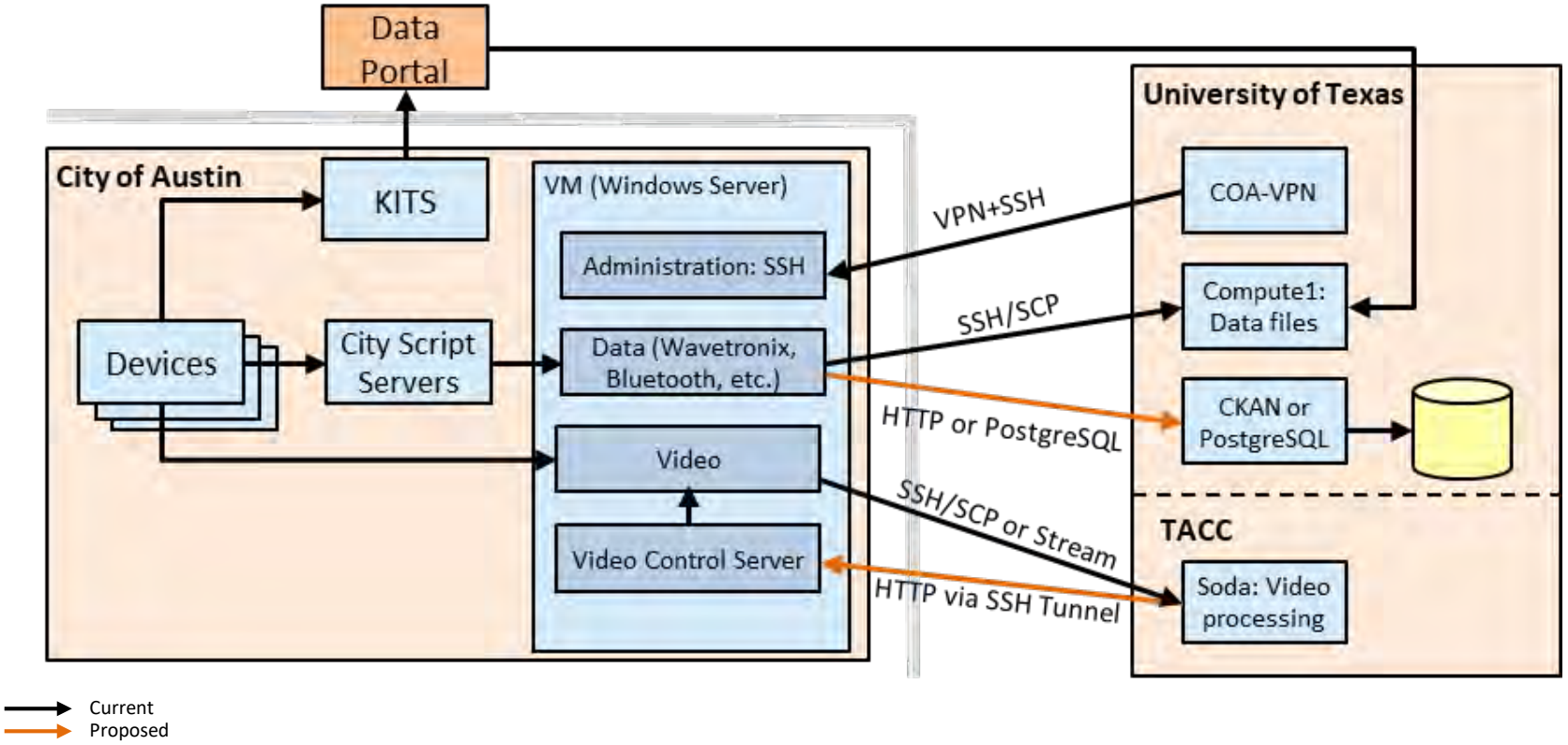
4. Data available online



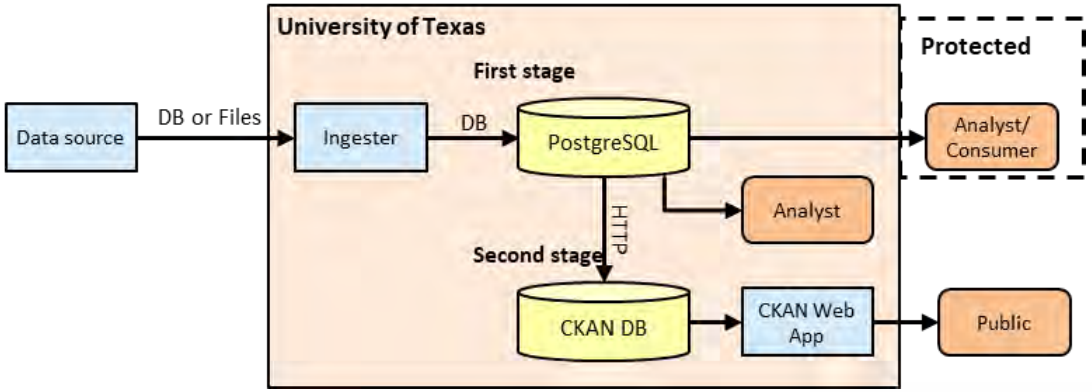
nmc-compute1.ctr.utexas.edu/hdr_corridor_pdfs/nlamar_intersections/HDR-COA-Site5.pdf

DB/CKAN Architecture

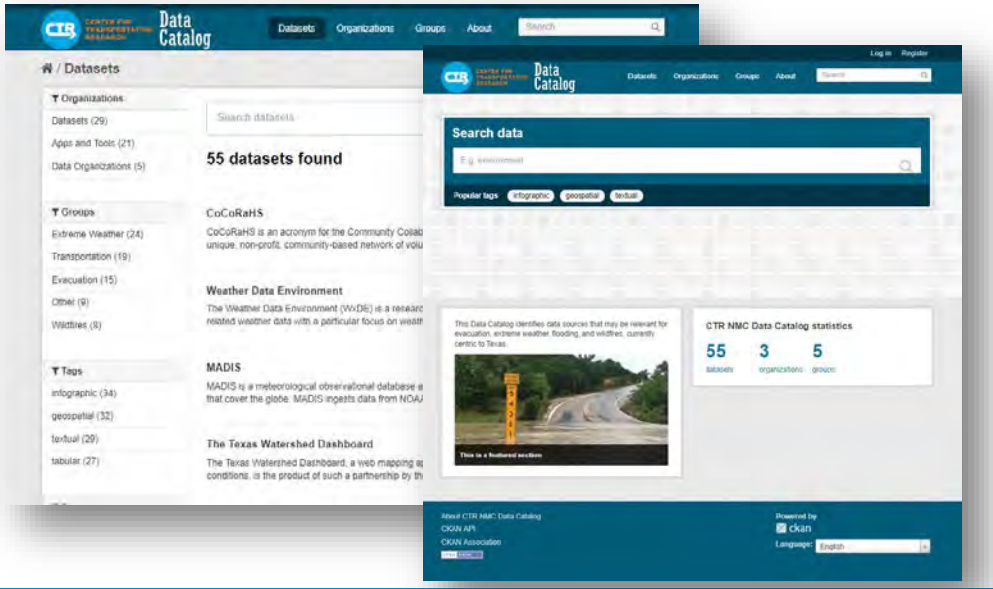
Open-source data portal framework



DB/CKAN Architecture

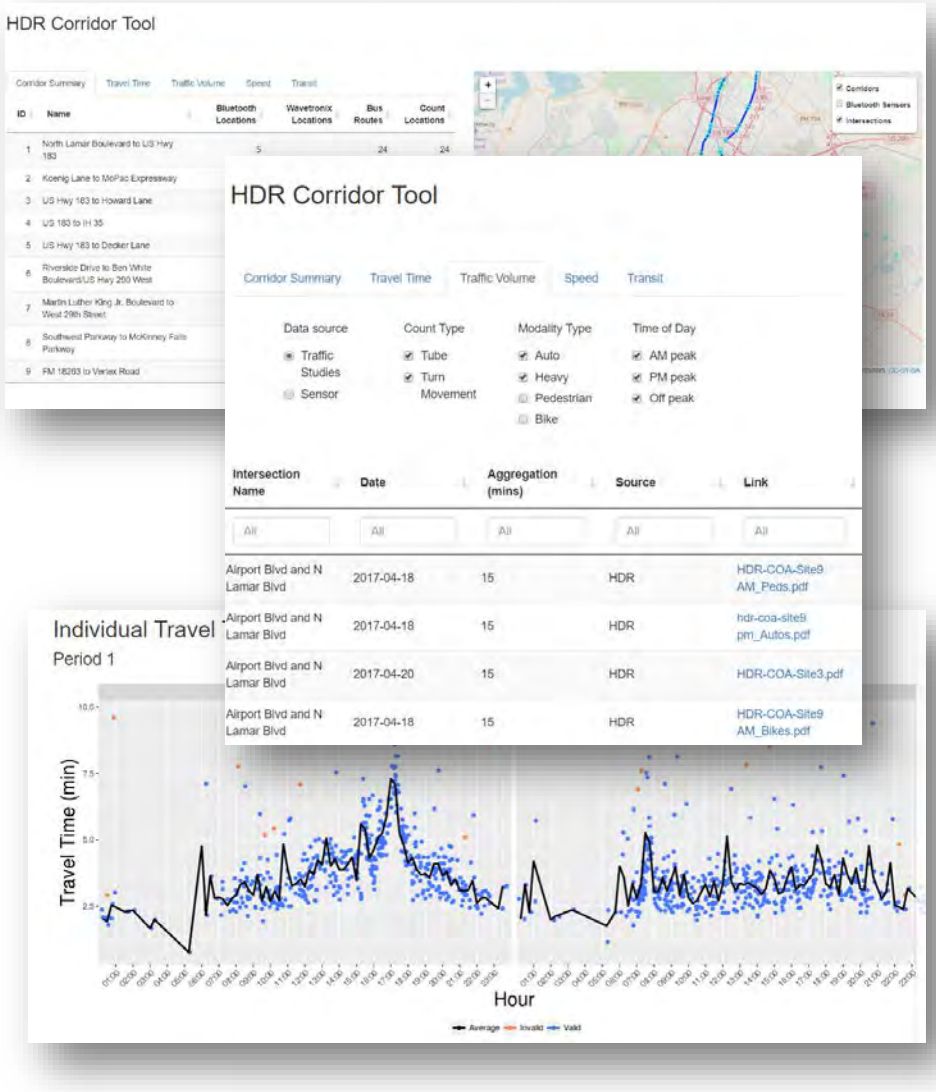


- Maintain two sets of data:
  - One for analysis (protected)
  - One for public consumption (via CKAN API)

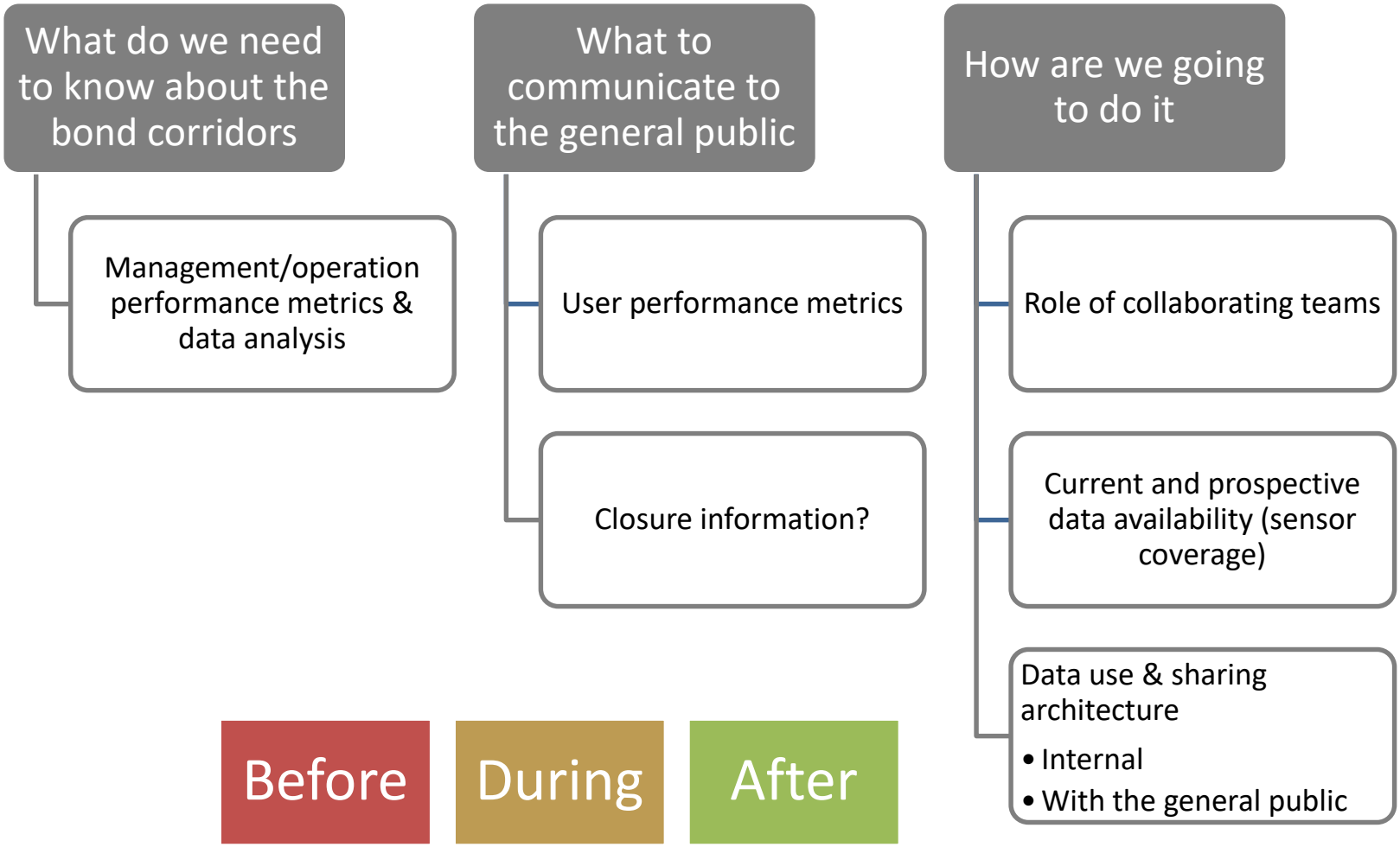


Next Steps

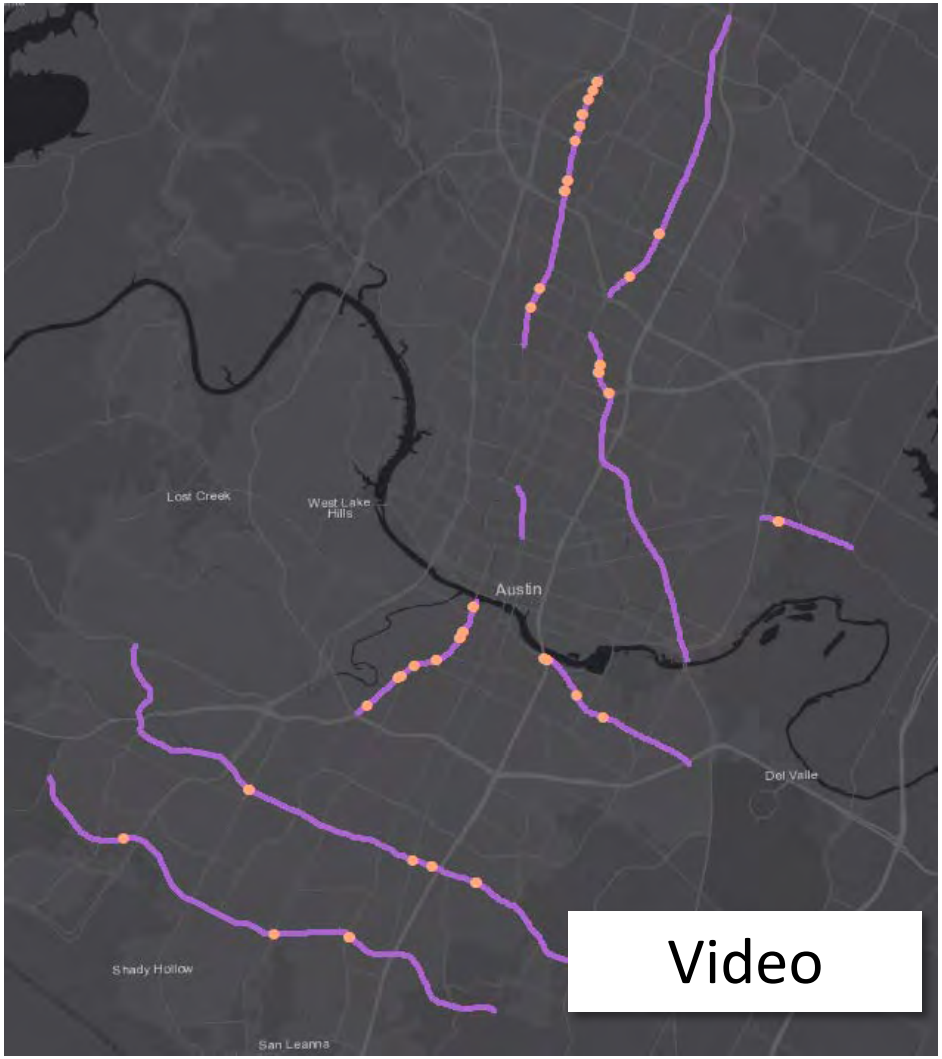
- Phase I
  - Incorporate additional data sources
    - Travel times from Bluetooth
    - Turning Movement Counts from Gidsmart
    - Transit travel times
    - Segment travel times from Inrix
  - Define sustainable architecture
  - Improve usability of the application
- Phase II
  - Additional data sources
  - Performance metrics
    - Data quality & cleaning



Discussion Framework



Data Coverage



Sensor Coverage

Wavetronix

Gridsmart

Bluetooth

Summary Table

Corridor Name	Bluetooth Locations	Wavetronix Locations	GRIDSMART Locations	Video Locations	INRIX
Burnet Rd.	6	2		10	Excellent
S. Lamar Blvd.	9	4		8	Excellent
East Riverside Dr.	5		1	4	Excellent
William Cannon Dr.	7		2	4	Excellent
Airport Blvd.	5			3	Excellent
Slaughter Ln.	2			3	Good
N. Lamar Blvd.	4		2	2	Excellent
E. MLK Blvd.	2			1	Excellent
Guadalupe St.	6				Excellent