Traceability and Transparency in Transportation Planning with GIS

March 27, 2019

DURHAM - CHAPEL HILL - CARRBORO
DCHC
Metropolitan Planning Organization
Planning Tomorrow's Transportation

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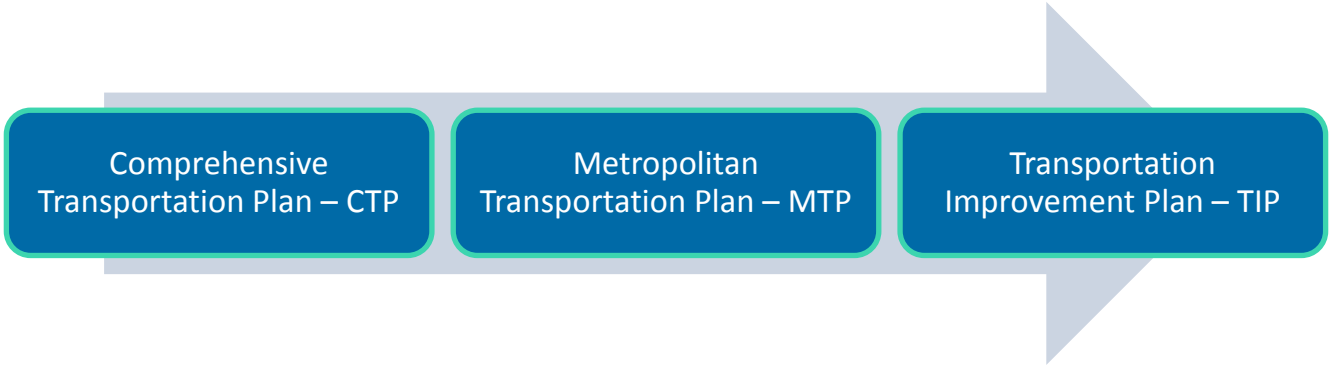
DCHC Project Goals

1. Provide transparency into the transportation planning process and funding
2. Be able to track a project across the transportation planning lifecycle



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Current Site - Wins

- Established public facing site for information sharing
- Incorporated a UI for Admin users to update project records in the TIP database

Current Site - Limits

- Only included TIP Projects – No MTP or CTP
- Limited map interface
- General slowness of app
- Behind the scenes – Disjointed business processes for maintaining non-TIP program data
- Behind the scenes – Ongoing investment with low return

TIP Redesign – Phase 1

- Initial evaluation of the current system
- Phase 1 began August 2018
- Scope:
  - Code review and refactoring
  - New data integration
  - Updated UI to expose new data
  - New mapping interface

Task 1 – Code Review and Refactoring

- Issues:
  1. Pages not loading or loading very slowly
  2. Existing reports load slowly given the scale of the data
  3. Users experience excessive logouts that disrupt their workflow
- Implemented fix into production in October 2018

Task 2 – Database Redesign

Goal = Be able to track a project across lifecycle

1. Incorporation of CTP/MTP
2. Establishment of unique/primary keys
3. Create relationships between CTP/MTP/TIP
4. Data conversion from old formats into new formats
5. Data integrity checks/foreign keys
6. Reduction of redundant data editing

Task 3 – Application Redesign

Goal = Increase public transparency

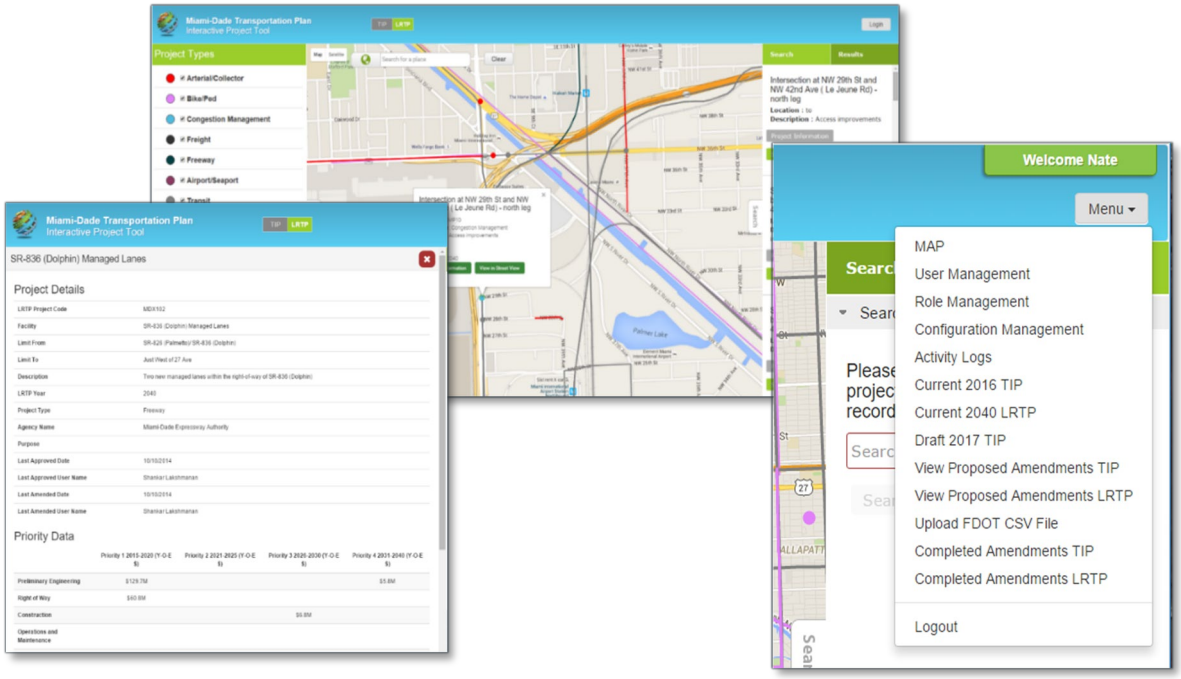
1. Create in TIP Environment
   - No need to recreate the wheel
2. Enhance mapping interface (prominence and functionality)
3. Allow projects (of all types) to be managed in UI
4. Expose higher quality/quantity of data

Demo

PHASE II and PHASE III

Scheduled to start in April 2019

- DCHC Scoring Tool
- Local Planning Partner Workflows
- Dynamic Querying
- Increased Reporting
- Routine maintenance and minor enhancements



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GeoDecisions
Project Manager
cmeyer@geodecisions.com

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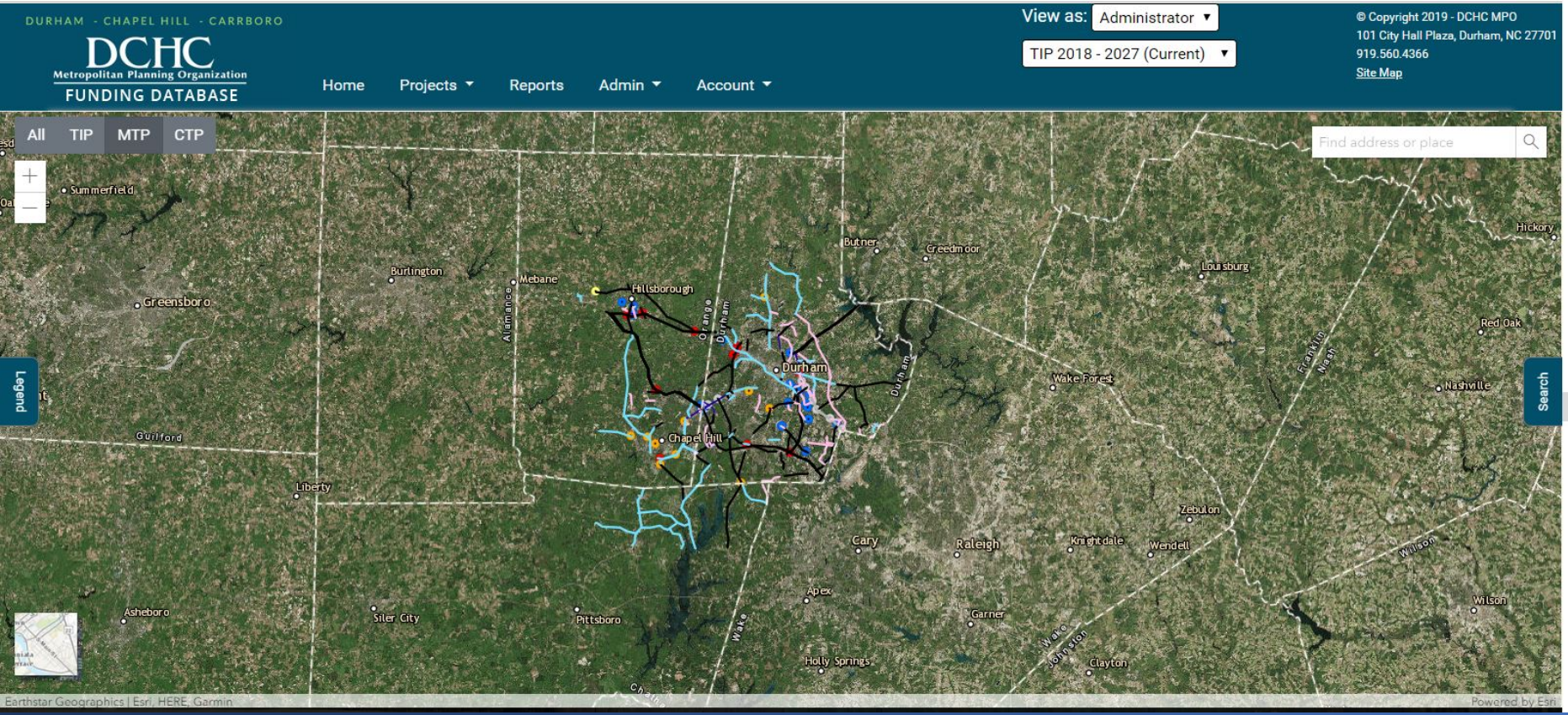
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All
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CTP
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Greensboro
Burlington
Mebane
Hillsborough
Alamance
Orange
Durham
Butner
Creedmoor
Louisburg
Hickory
Red Oak
Nashville
Wake Forest
Franklin
Wash
Guilford
Liberty
Chapel Hill
Durham
Zebulon
Cary
Raleigh
Knightdale
Wendell
Wilson
Asheboro
Siler City
Pittsboro
Apex
Garner
Wake
Johnston
Clayton
Holly Springs
Earthstar Geographics | Esri, HERE, Garmin
Powered by Esri

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Bus Station
Park and Ride
Park and Ride

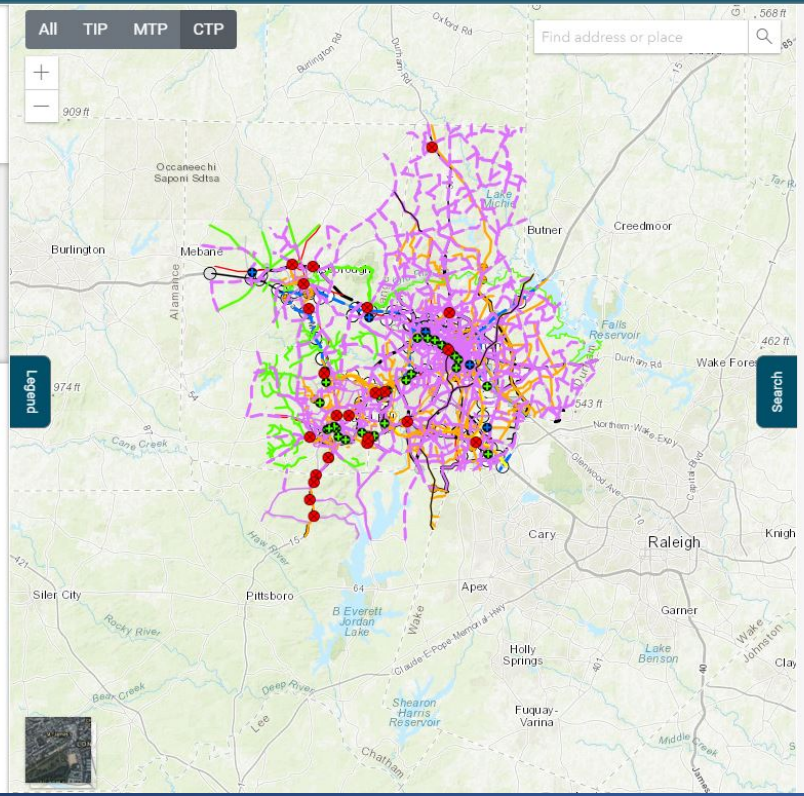
ComprehensiveTransportationPlan - Rail Projects

TypeStatus
- ADQ - Recommended
- ADQ - Corridor Protection - Recommended
- Corridor Protection - Recommended
- Multi-Modal Connector(D-O LRT) - Recommended
- Other

ComprehensiveTransportationPlan - Rail Facilities

ImprovementType
- ADQ - Rail Stop (Commuter Rail)
- Multimodal Connector (D-O LRT)
- Rail Stop (Commuter Rail)
- Rail Stop (Commuter Rail)
- Rail Stop (D-O LRT)
- Rail Stop (Light Rail)
- <all other values>

ComprehensiveTransportationPlan - Bicycle Projects



All | TIP | MTP | CTP

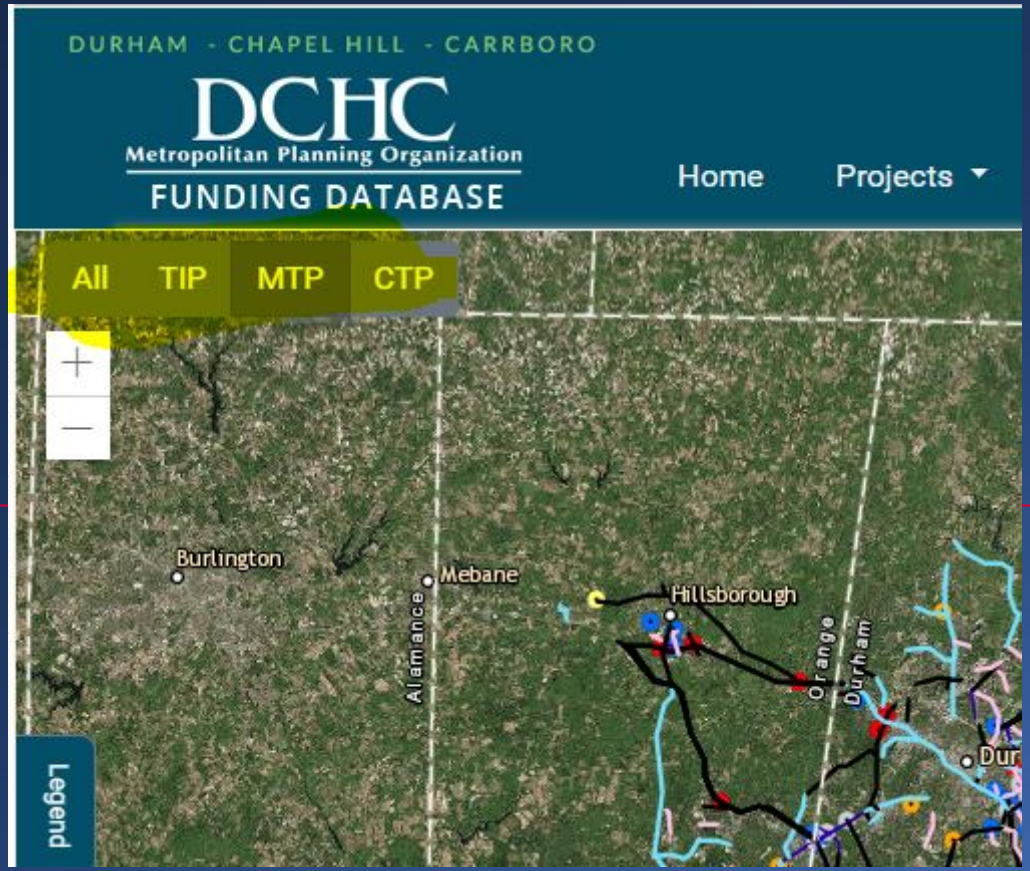
CTP Projects

Southwest Durham Dr
Project Type: CTP
Project ID: DURH0336-B
Mode: Bicycle
Description: I-40 to NC 54
Zoom to project | View Details

Dimmock Mill Rd
Project Type: CTP
Project ID: ORAN0122-B
Mode: Bicycle
Description: I-40 to Orange Grove Rd
Zoom to project | View Details

I-40 /I-85
Project Type: CTP
Project ID: ORAN9818-H
Mode: Highway
Description: Buckhorn Rd to Mt. Willing Rd
Zoom to project | View Details

I-40 /I-85
Project Type: CTP
Project ID: ORAN9817-H
Mode: Highway
Description: I-85/US 70 Connector to Mt. Willing Rd
Zoom to project | View Details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Home
Projects
All
TIP
MTP
CTP
Burlington
Mebane
Hillsborough
Alamance
Orange
Durham
Legend

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TransportationImprovementProgram - Transportation Improvement Projects Lines

TransportationImprovementProgram - Transportation Improvement Plan Points

MetropolitanTransportationPlan - MTP Highway Projects

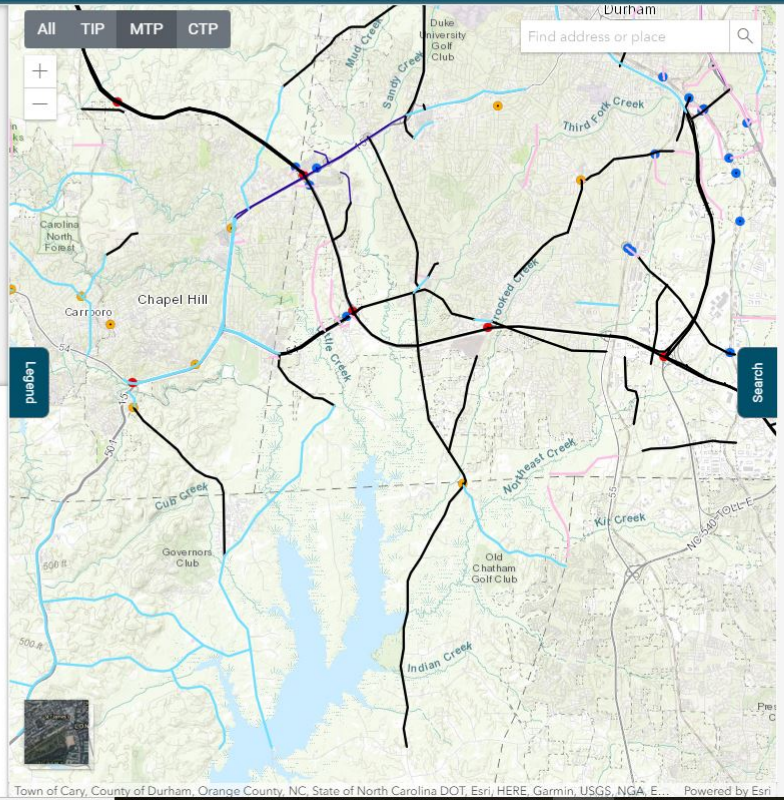
ImprovementType

- Expressway ; Expressway
- Expressway ; Expressway
- Freeway
- Freeway
- Modernization
- New Location
- Widening
- Other

MetropolitanTransportationPlan - MTP Interchange Properties

ImprovementType

- Add Access
- Interchange Upgrade
- Intersection Upgrade
- Intersection or Interchange
- New Grade Separation
- New Interchange



Search | About | Results

General Search

The General Search returns TIP, MTP, and CTP project records that contain user's search criteria in the Project Name, Project Type, Project ID, and/or Description fields.

I-40

Advanced Search

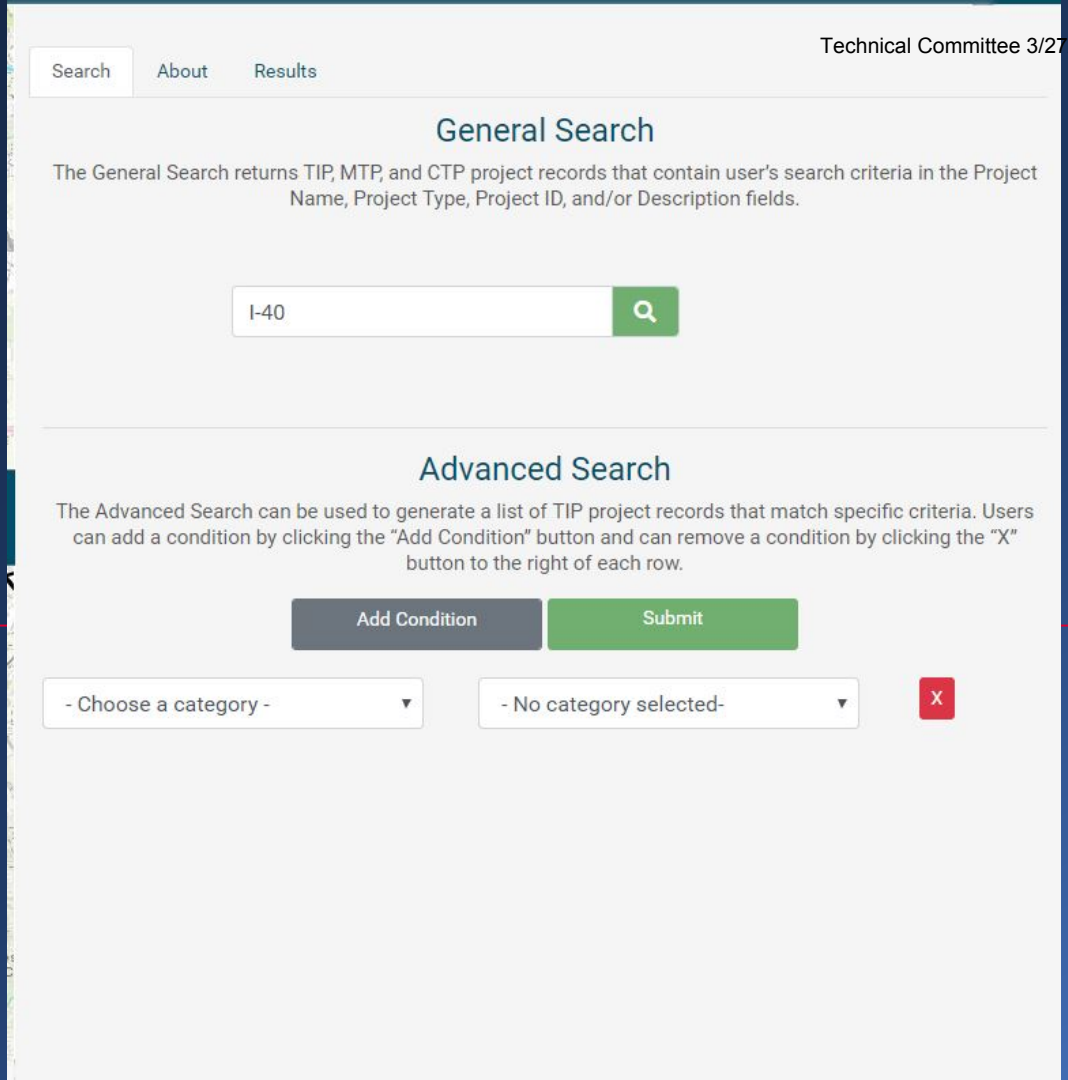
The Advanced Search can be used to generate a list of TIP project records that match specific criteria. Users can add a condition by clicking the "Add Condition" button and can remove a condition by clicking the "X" button to the right of each row.

Add Condition | Submit

- Choose a category -

- No category selected-

X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Submit
- Choose a category -
- No category selected-
X

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Apps JIRA DCHC webex Other ESRI NCDOT Pennsylvania Opioi... Error: Violation of P...

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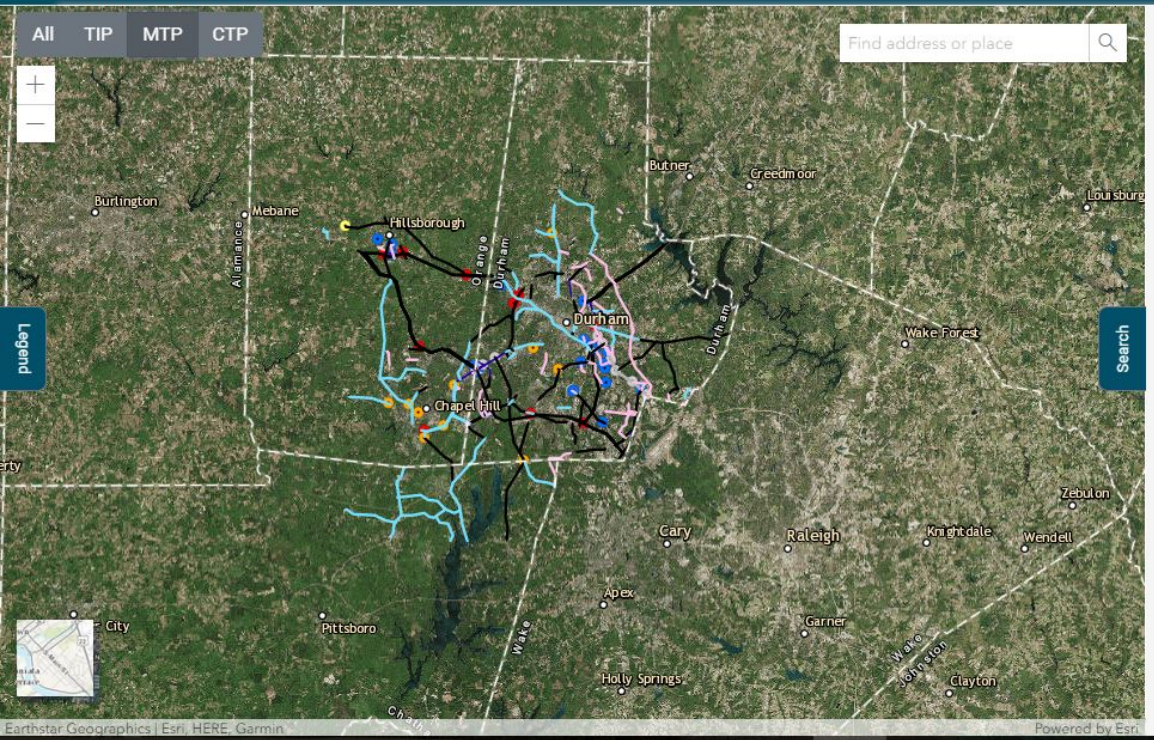


Search About Results

Search results for "I-40"

All TIP MTP CTP

TIP Projects

I-40 Auxiliary Lane

Project Type: TIP
Project ID: I-5707
Mode:
Description:

Construct westbound auxiliary lane along I-40 from NC 55 to NC 147. Planning and design for this project are in progress.

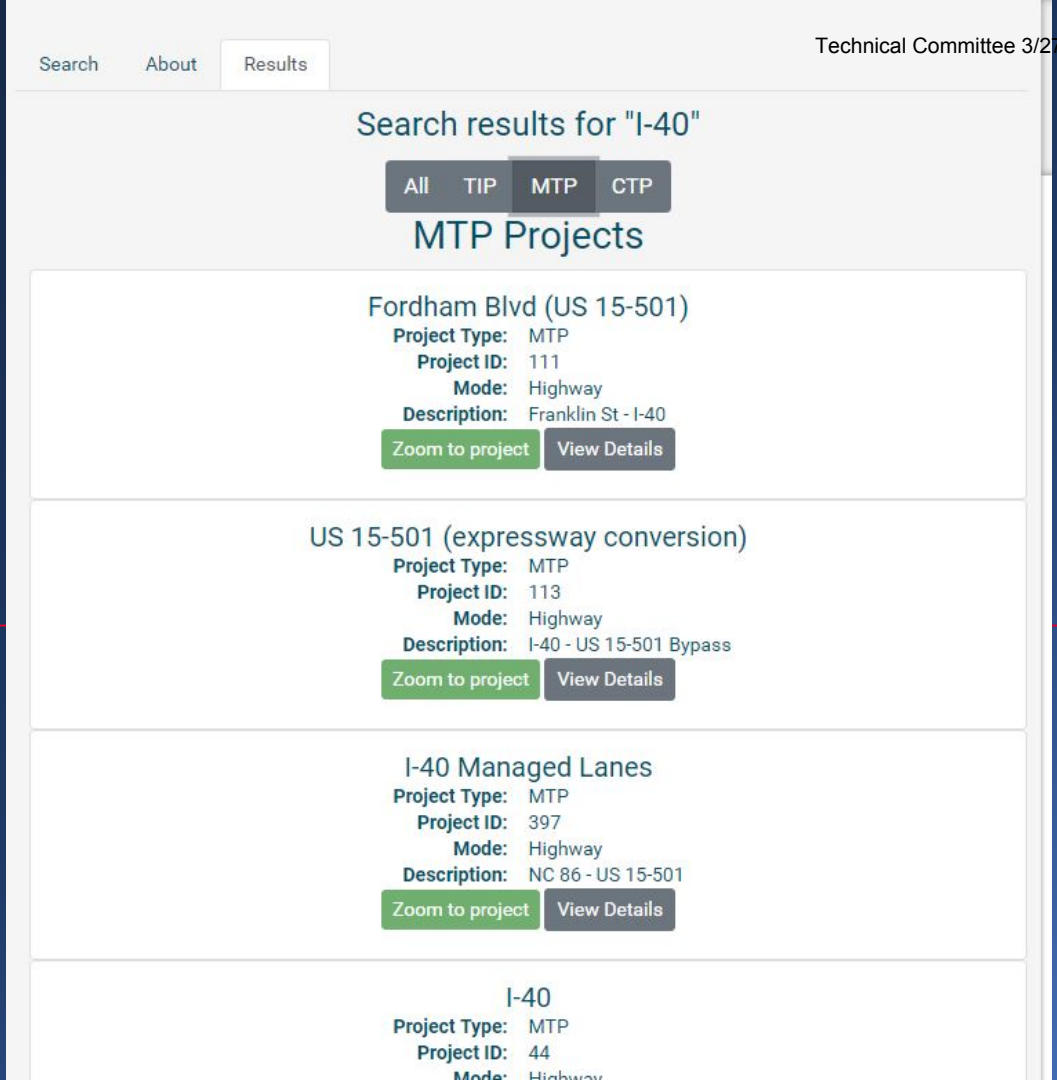
Zoom to project | View Details

I-40

Project Type: TIP
Project ID: I-5822
Mode:
Description:

Pavement rehabilitation along I-40 from 1.6 miles east of NC 86 to 0.8 miles east of SR 1734 Erwin Road. Coordinate with I-3306A. Deleted by NCDOT in Amendment #6. Work to be incorporated into I-3306A.

Zoom to project | View Details


Search
About
Results
Search results for "I-40"
All
TIP
MTP
CTP
MTP Projects
Fordham Blvd (US 15-501)
Project Type: MTP
Project ID: 111
Mode: Highway
Description: Franklin St - I-40
Zoom to project
View Details
US 15-501 (expressway conversion)
Project Type: MTP
Project ID: 113
Mode: Highway
Description: I-40 - US 15-501 Bypass
Zoom to project
View Details
I-40 Managed Lanes
Project Type: MTP
Project ID: 397
Mode: Highway
Description: NC 86 - US 15-501
Zoom to project
View Details
I-40
Project Type: MTP
Project ID: 44

Search | About | Results

Search results for "I-40"

All | TIP | MTP | CTP

CTP Projects

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Description: I-40 to NC 54
Zoom to project | View Details

Dimmock Mill Rd
Project Type: CTP
Project ID: ORAN0122-B
Mode: Bicycle
Description: I-40 to Orange Grove Rd
Zoom to project | View Details

I-40 /I-85
Project Type: CTP
Project ID: ORAN9818-H
Mode: Highway
Description: Buckhorn Rd to Mt. Willing Rd
Zoom to project | View Details

I-40 /I-85
Project Type: CTP
Project ID: ORAN9817-H

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Park and Ride
Park and Ride

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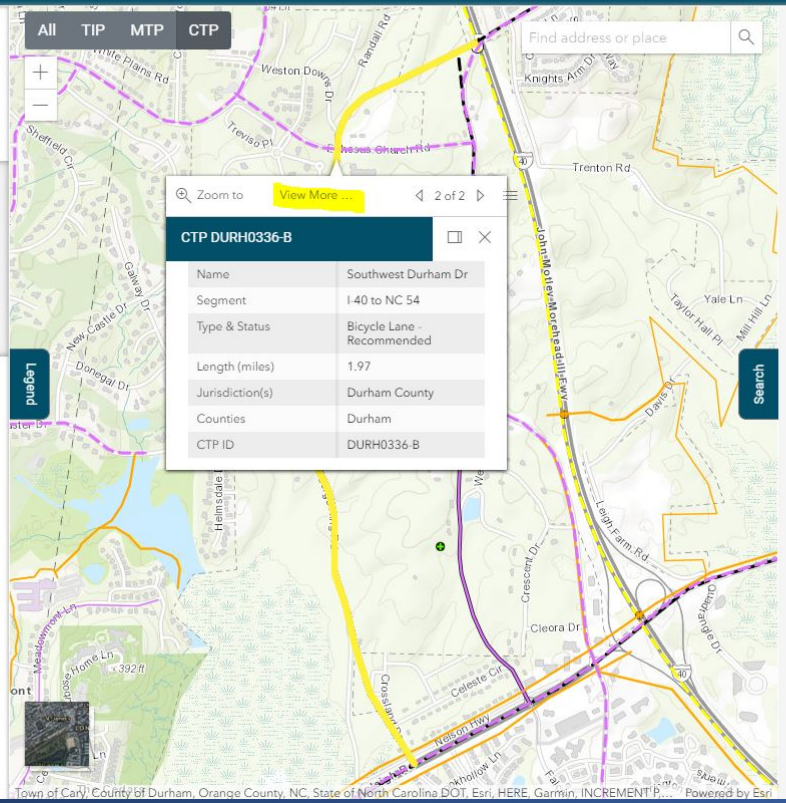
ComprehensiveTransportationPlan - Bicycle Projects



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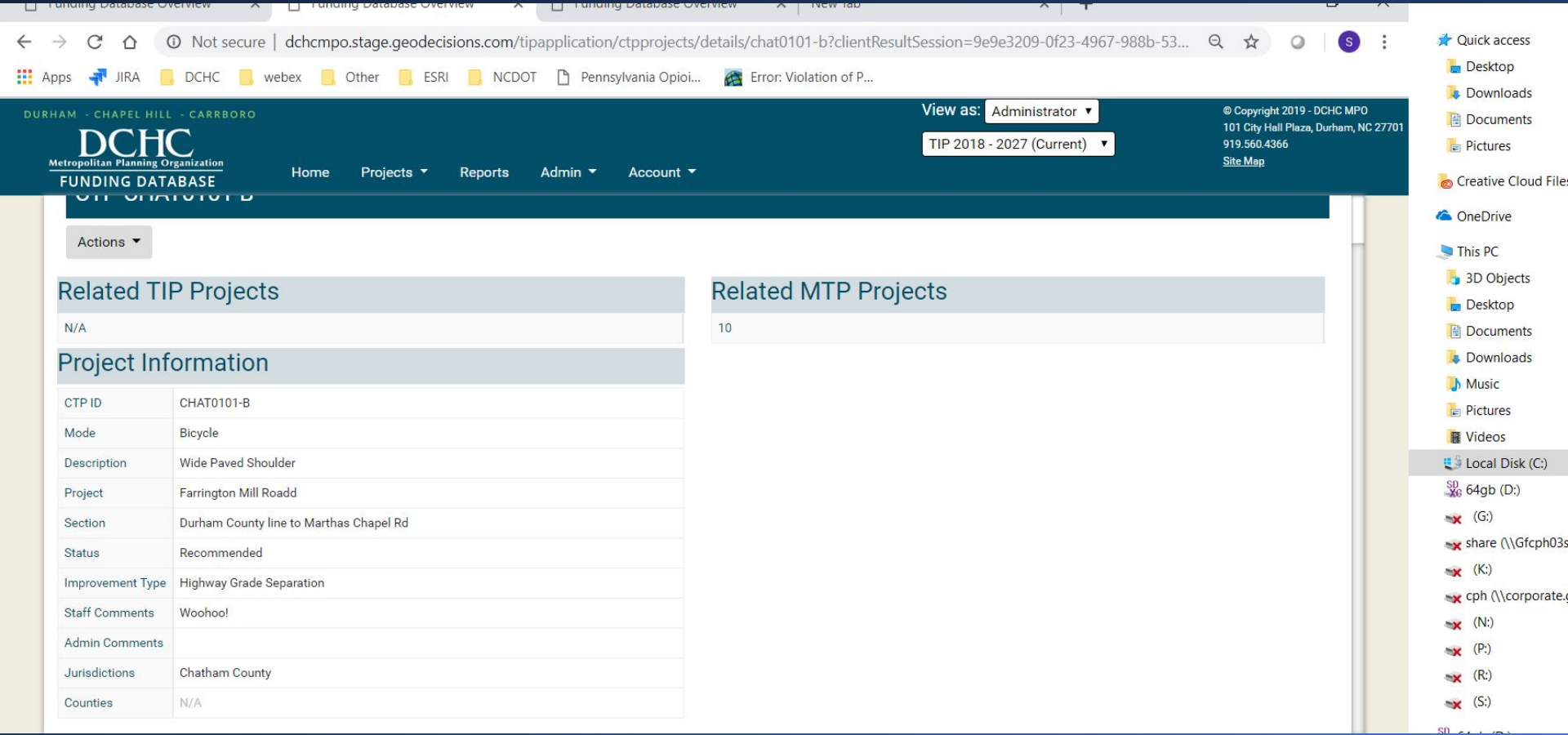
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Site Map
Actions
Related TIP Projects
N/A
Related MTP Projects
10
Project Information
CTP ID CHAT0101-B
Mode Bicycle
Description Wide Paved Shoulder
Project Farrington Mill Roadd
Section Durham County line to Marthas Chapel Rd
Status Recommended
Improvement Type Highway Grade Separation
Staff Comments Woohoo!
Admin Comments
Jurisdictions Chatham County
Counties N/A
Quick access
Desktop
Downloads
Documents
Pictures
Creative Cloud Files
OneDrive
This PC
3D Objects
Desktop
Documents
Downloads
Music
Pictures
Videos
Local Disk (C:)
64gb (D:)
(G:)
share (\\Gfcph03s
(K:)
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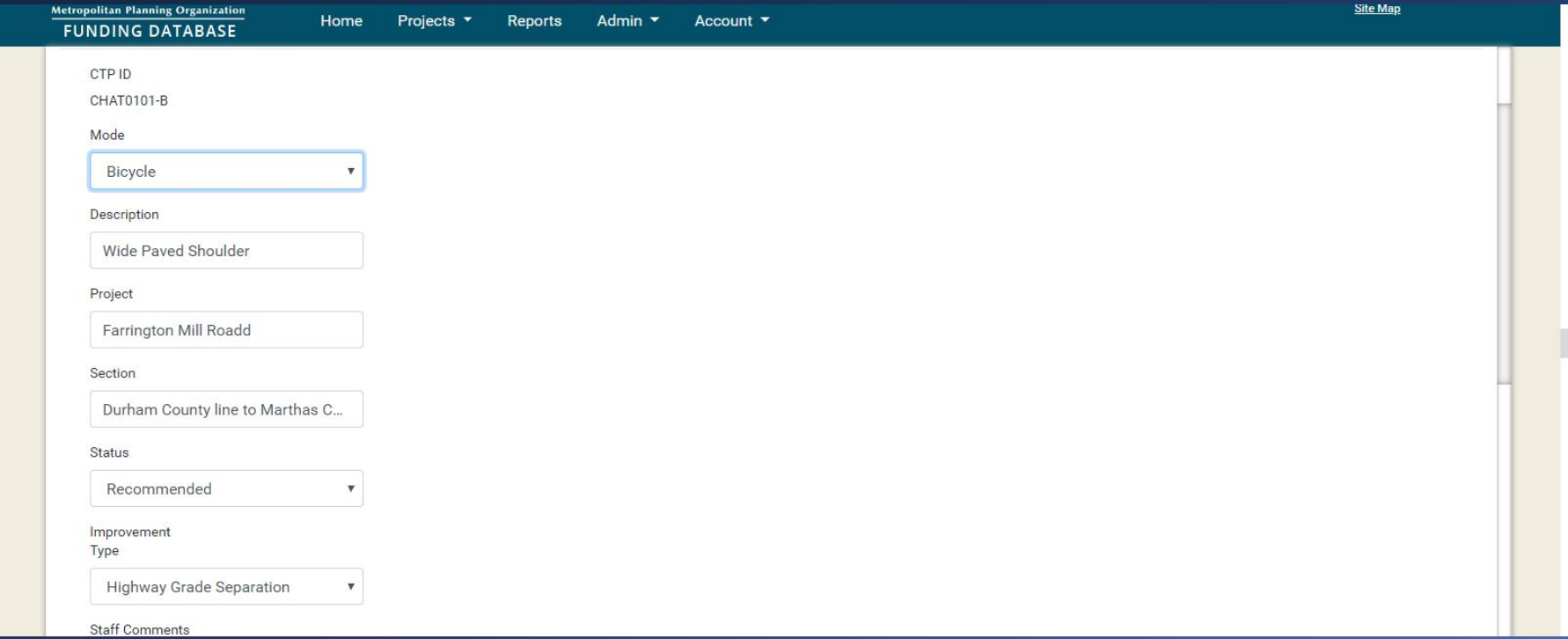
(N:)
(P:)
(R:)
(S:)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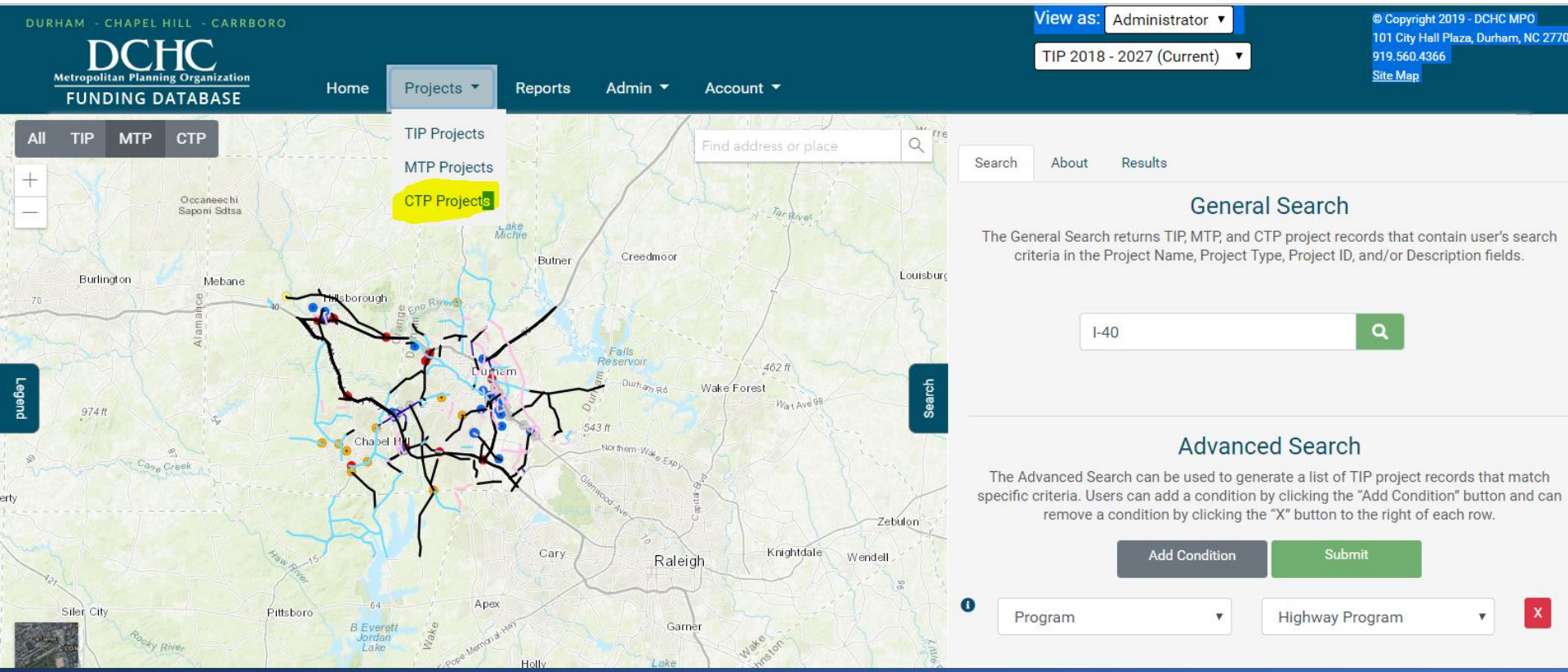
CTP ID
CHAT0101-B
Mode
Bicycle
Description
Wide Paved Shoulder
Project
Farrington Mill Roadd
Section
Durham County line to Marthas C...
Status
Recommended
Improvement Type
Highway Grade Separation
Staff Comments
Creative Clo
OneDrive
This PC
3D Object
Desktop
Document
Download
Music
Pictures
Videos
Local Disk
64gb (D:)
(G:)
share (\\G
(K:)
cph (\\cor
(N:)
(P:)
(R:)
(S:)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MTP Projects
CTP Projects
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I-40
Advanced Search
The Advanced Search can be used to generate a list of TIP project records that match specific criteria. Users can add a condition by clicking the "Add Condition" button and can remove a condition by clicking the "X" button to the right of each row.
Add Condition
Submit
Program
Highway Program
X
Legend
Search
Hillsborough
Durham
Chapel Hill
Cary
Raleigh
Apex
Garner
Wake Forest
Zebulon
Knightdale
Wendell
Pittsboro
Siler City
Butner
Creedmoor
Louisburg
Burlington
Mebane

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Site Map

Overview

The CTP Projects page provides a listing of all CTP projects in the DCHC MPO area. The list can be re-sorted by clicking on the column name at the top of each column.

Create

Project List

CTP ID	Project	Improvement Type	Mode	Status	Section	Description	Actions
CHAT9993-B	Mt Carmel Church Rd	Wide Paved Shoulder	Bicycle	Needs Improvement	Orange County line to Old Farrington Point Rd	Wide Paved Shoulder	View Details
CHAT0103-B	O Kelly Chapel Rd	Wide Paved Shoulder	Bicycle	Needs Improvement	NC 751 to Wake County line	Wide Paved Shoulder (from 751 to the ATT)	View Details
CHAT0104-B	Poythress Rd	Wide Paved Shoulder	Bicycle	Needs Improvement	Manns Chapel Rd to Lamont Norwood Rd	Wide Paved Shoulder	View Details
ORAN9490-B	Estes Drive	Wide Outside Lane	Bicycle	Existing	Caswell to Fordham	Wide Outside Lane	View Details
ORAN0129-B	Estes Drive	Wide Outside Lane	Bicycle	Needs Improvement	NC 86 to 15-501/Fordham	Wide Outside Lane	View Details
ORAN9480-B	Franklin St	Wide Outside Lane	Bicycle	Existing	Estes Dr to Roosevelt	Wide Outside Lane	View Details
ORAN9428-B	NC 54	Wide Outside Lane	Bicycle	Existing	Reeves Rd to Jones Ferry Rd	Wide Outside Lane	View Details
ORAN9427-B	NC 54	Wide Outside Lane	Bicycle	Existing	Jones Ferry Rd to Just east of Smith Level Rd	Wide Outside Lane	View Details
ORAN9768-M	Cole Spring Br	Unpaved Trail	Multi-Use	Existing	Neighborhood to Bolin Cr Trail	Unpaved Path	View Details
					Buck Branch Trail to Turnage Ridge		

CTP CHAT0101-B

Start new search

Actions

Related TIP Projects

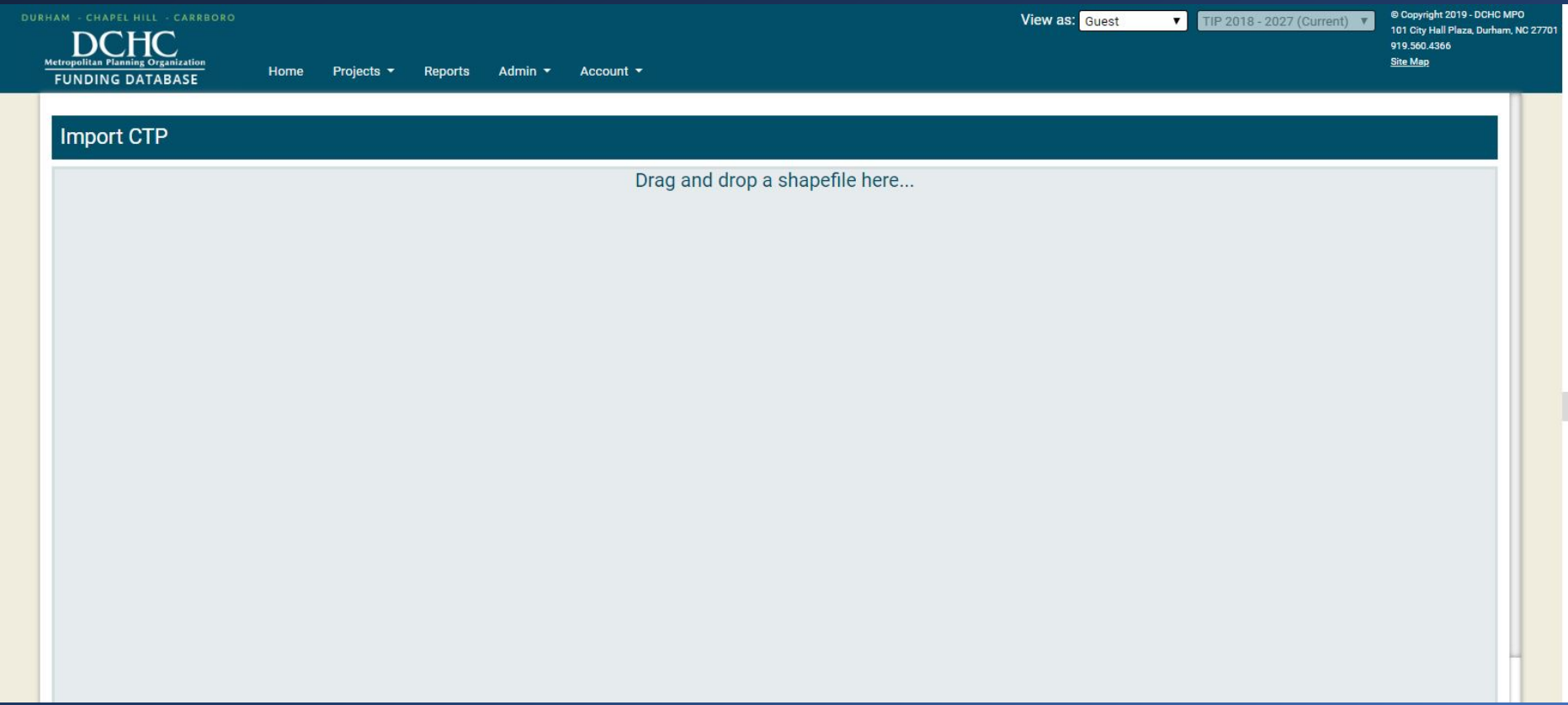
N/A

Related MTP Projects

10

Project Information

CTP ID	CHAT0101-B
Mode	Bicycle
Description	Wide Paved Shoulder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Import CTP
Drag and drop a shapefile here...

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MTP Features from Shapefile

MTP_Lines

Rows that do not have an existing project in the database display as red and will not be inserted.

Rows where a duplicate exists in the GIS database display as blue and will overwrite the existing record.

MTP_ID
GonnaFail
59-21
NCGISTEST

Submit

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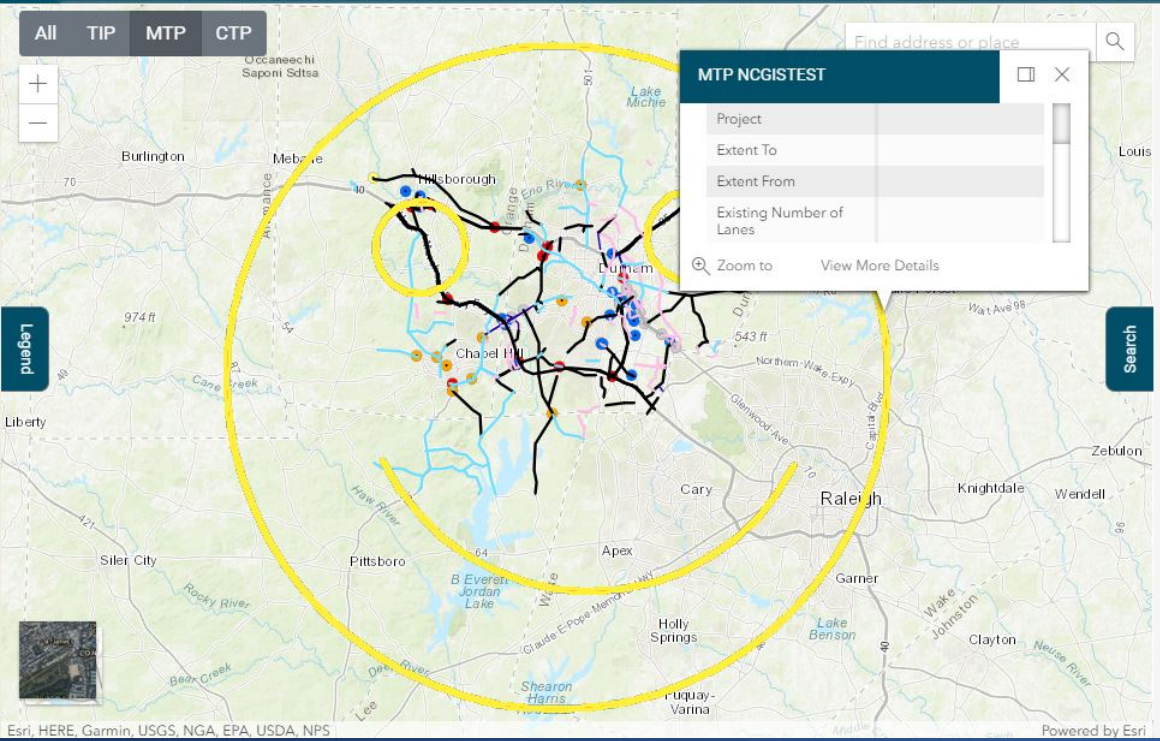

Search | About

General Search

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Advanced Search

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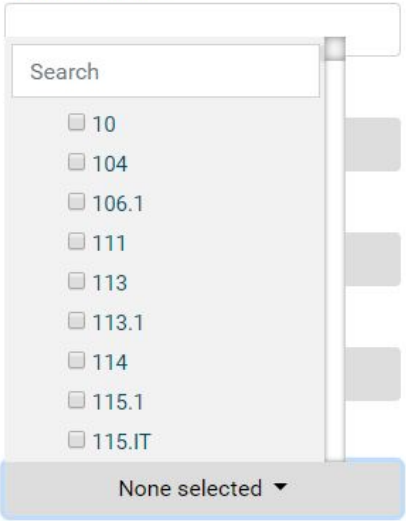
Add Condition | Submit

- Choose a category - | - No category selected- | X

Admin Comments



Save

Back to List

CTP Project

CTP ID

Mode

Highway

Description

Project

Section

Status

Recommended

Improvement Type

Highway Grade Separation

Staff Comments

Admin Comments

Counties

None selected

Jurisdictions

None selected

RelatedTIP

None selected