

I-85 Bridge Collapse: What We Have Learned

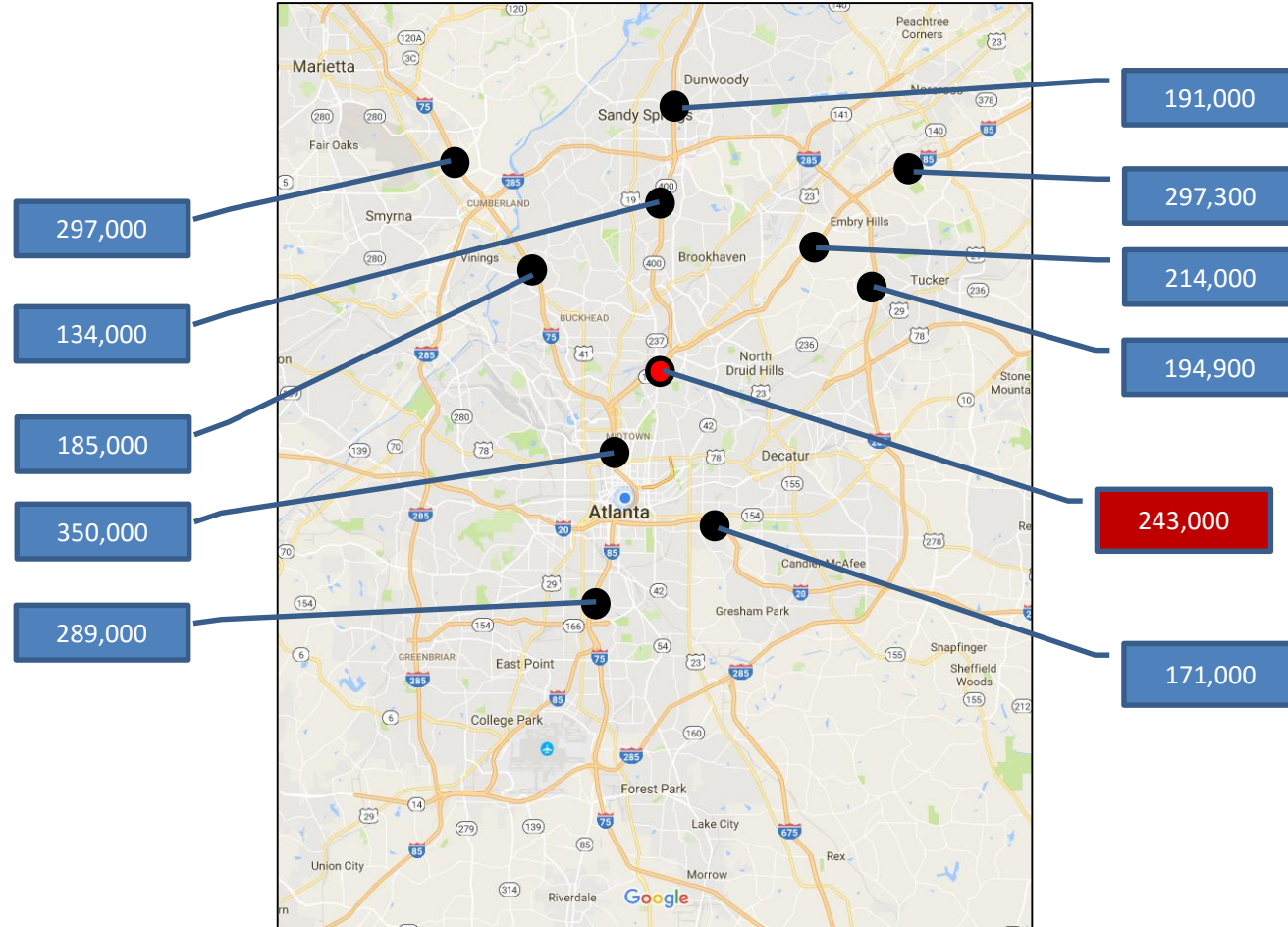
Regional Snapshot: May 2017

- March 30: Fire underneath I-85 caused the bridge to collapse and altered the commutes for hundreds of thousands of commuters.
- Around 240,000 trips go through the impacted area each weekday.
- Eastern half of the I-285 perimeter impacted the most, but travel was impacted all throughout the region, with a minimum of 30 percent increase in volumes across network.
- Commuters are far south as Newnan and as far north as Cumming regularly travel through that affected area.
- Many MARTA stations, especially those in the northern part of the region, have experienced large increases in ridership after the bridge collapse.
- According to a survey done by Invest Atlanta, some 75 percent of the businesses in the area have experienced a loss of customers due to the collapse.
- Bridge to reopen by May 26?



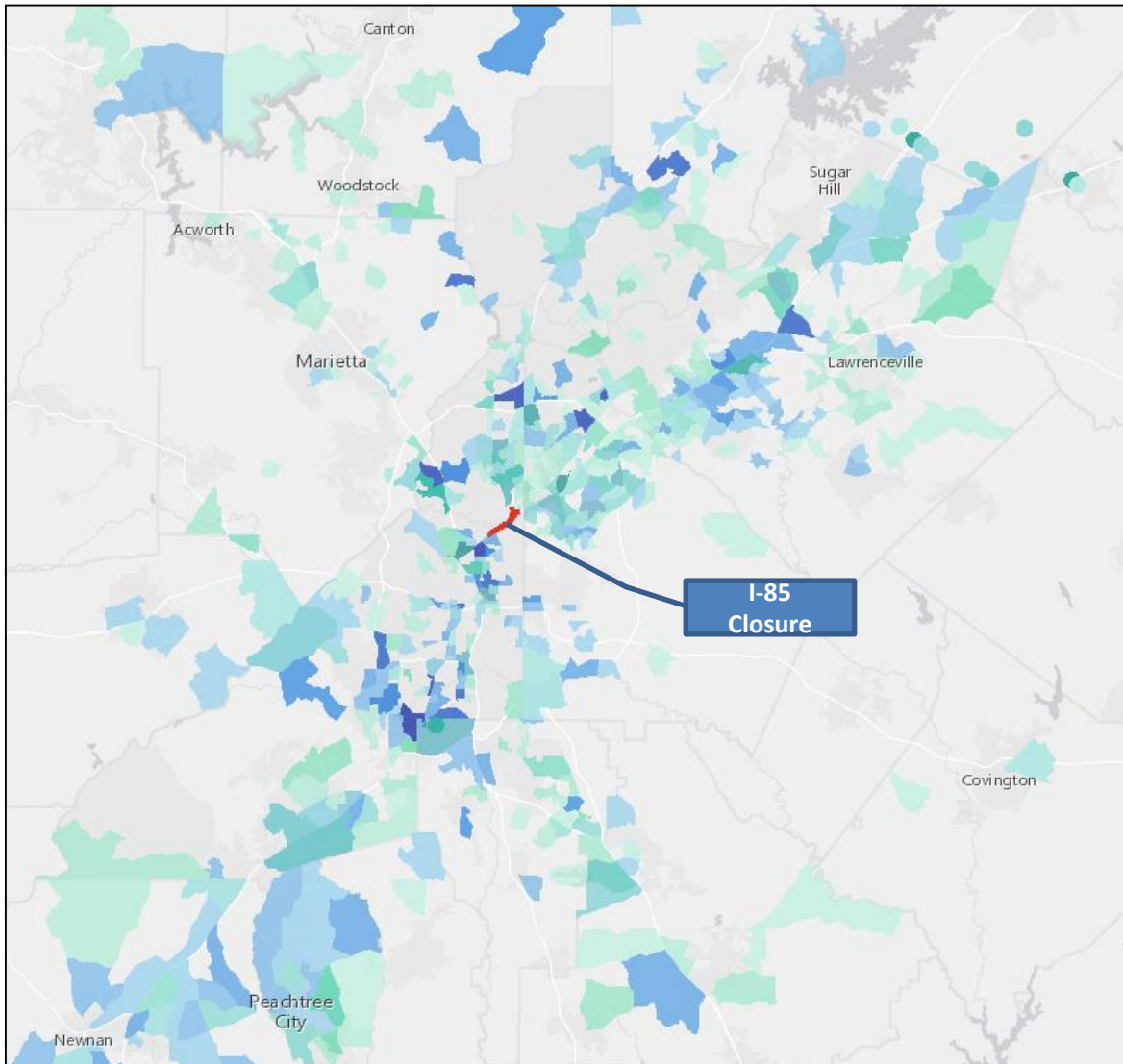
Historic traffic counts

- Around 243,000 trips travel through the affected area daily



Who travels on I-85?

- The affected area on I-85 is a critical link in the transportation network
- In the morning travel period, trips routinely flow from as far south as Newnan and from as far north as Cumming



Trip Origins



Trip Destinations

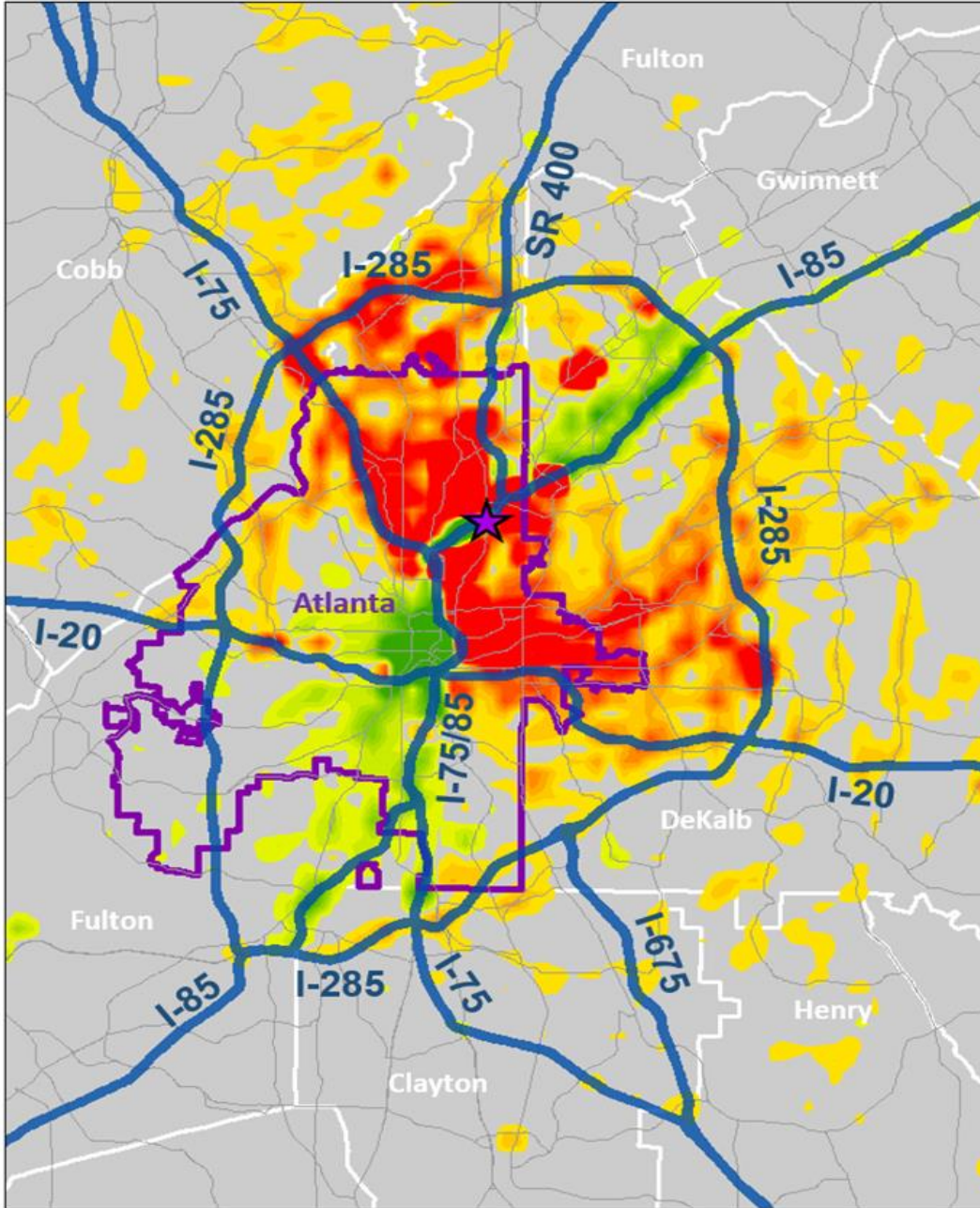


Green = trip origins
Blue = trip destinations

The impact: Congestion

AM Peak Period –congestion

- System wide impacts
 - Minimum of 30 percent increases in volume throughout network; some areas 50 percent
 - Congestion on arterials
 - Congestion in unexpected places
 - “Peak spreading” – starting earlier and ending later

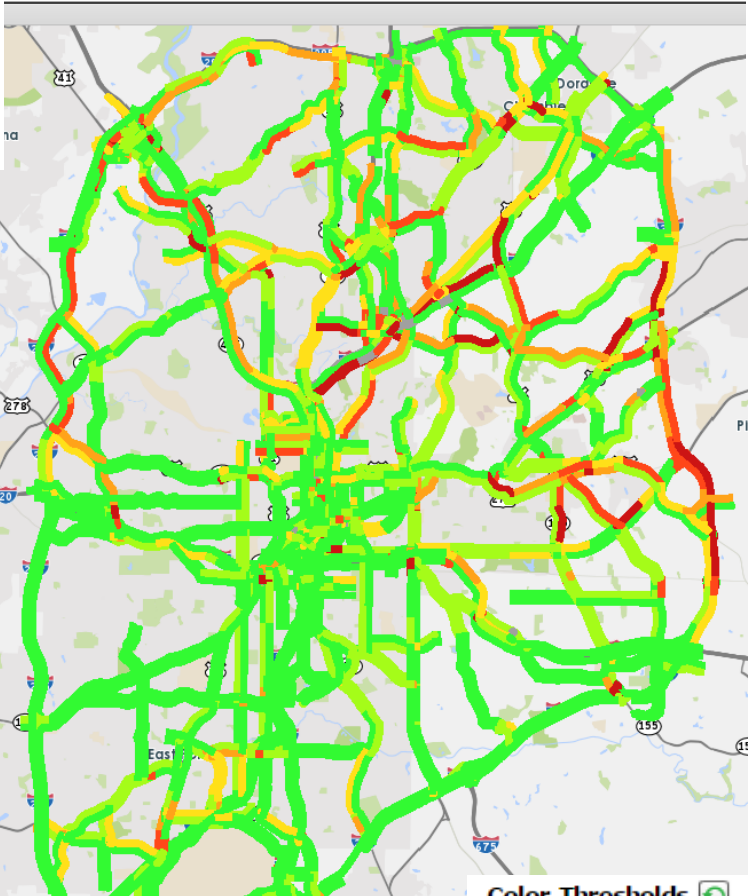


Percent Change in Volume : Reds = Increase

The impact: Speed During the AM Peak

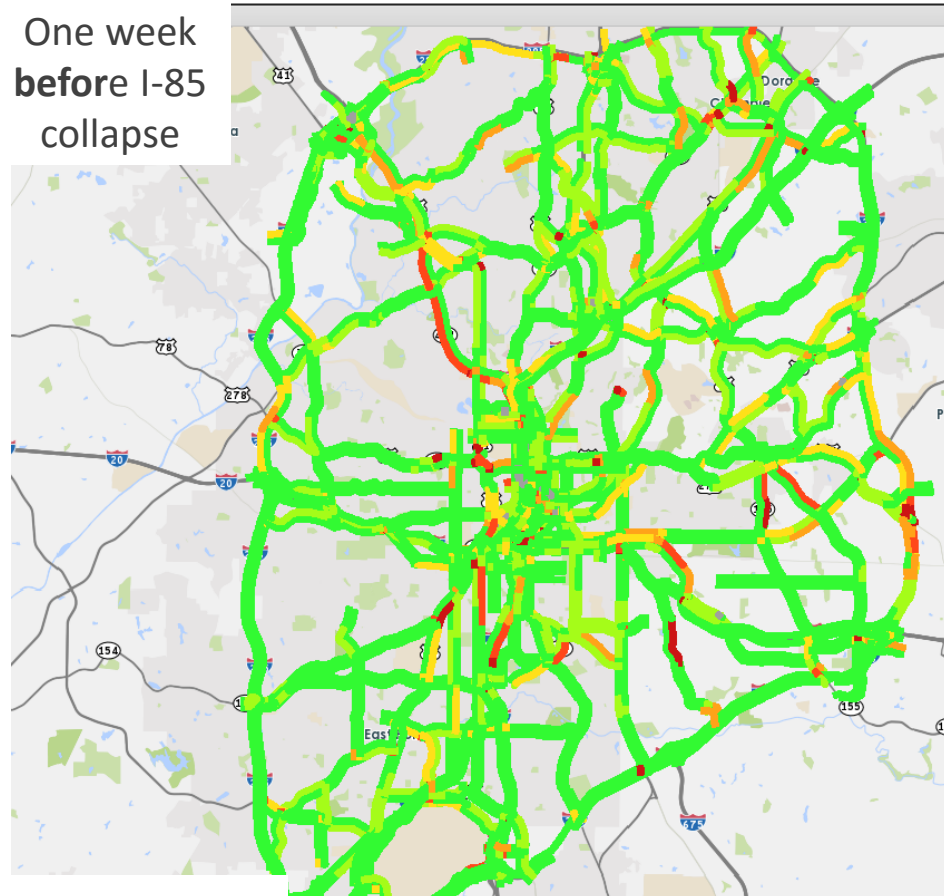
8:00 AM Thursday April 13, 2017:

Two weeks
after I-85
collapse



8:00 AM Thursday March 23, 2017:

One week
before I-85
collapse



ARC has been analyzing travel patterns using real-time INRIX software.

Looking at **comparative speed** is helpful because it identifies roads where traffic is moving slower than normal (even if the normal speed is slow). These maps use comparative speed to show the speed of traffic for that time measured as a percentage of historic average speed for that day/time.

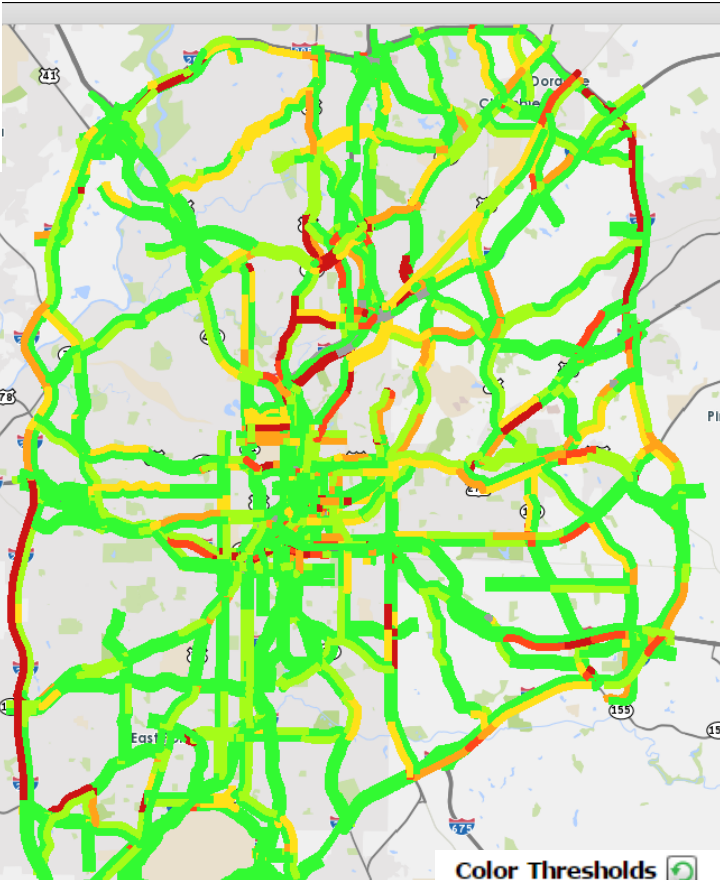
For example, if “normal” traffic speed is 40 mph, 100% would represent 40 mph and 50% would represent 20 mph.

As the maps show, most roadways on the eastern half of the perimeter experienced significant slowing.

The impact: Speed During the PM Peak

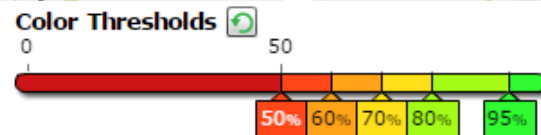
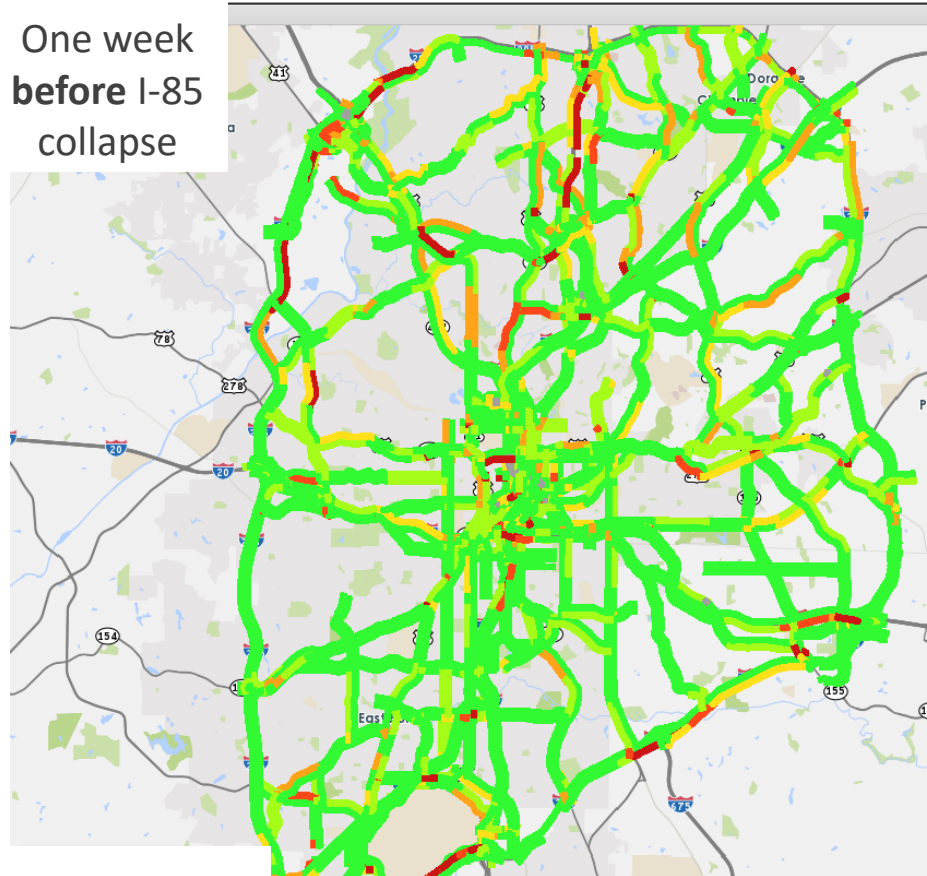
5:00 PM Thursday April 13, 2017:

Two weeks
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collapse



5:00 PM Thursday March 23, 2017:

One week
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ARC has been analyzing travel patterns using real-time INRIX software.

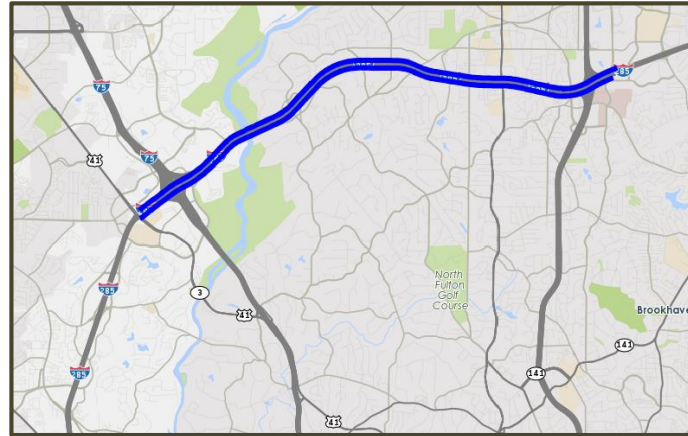
Looking at **comparative speed** is helpful because it identifies roads where traffic is moving slower than normal (even if the normal speed is slow). These maps use comparative speed to show the speed of traffic for that time measured as a percentage of historic average speed for that day/time.

For example, if “normal” traffic speed is 40 mph, 100% would represent 40 mph and 50% would represent 20 mph.

As the maps show, most roadways on the eastern half of the perimeter experienced significant slowing, as did I-285 on the west side.

Corridor speed analysis: I-285: I-75 to GA 400

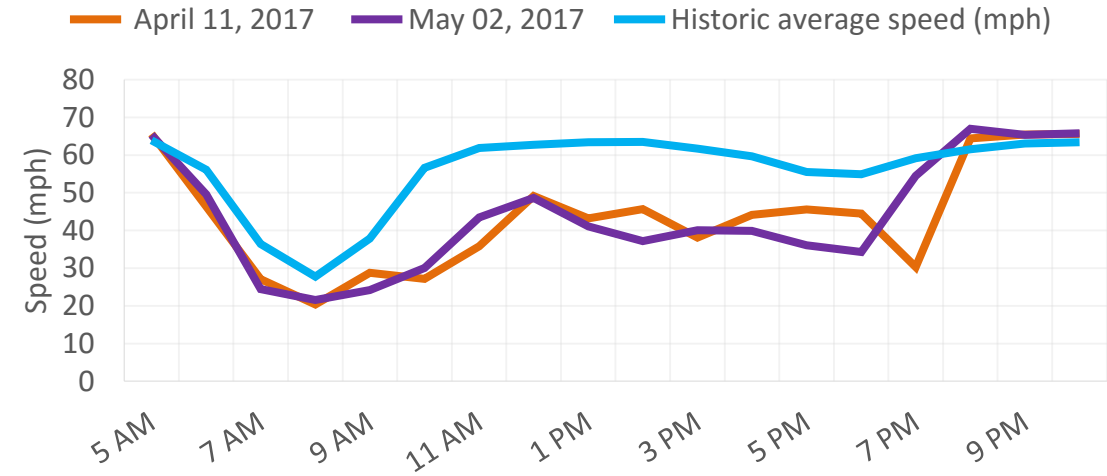
We analyzed several corridors at two different points in time after the bridge collapse. We then compared speeds on those days to historic speeds along that corridor.



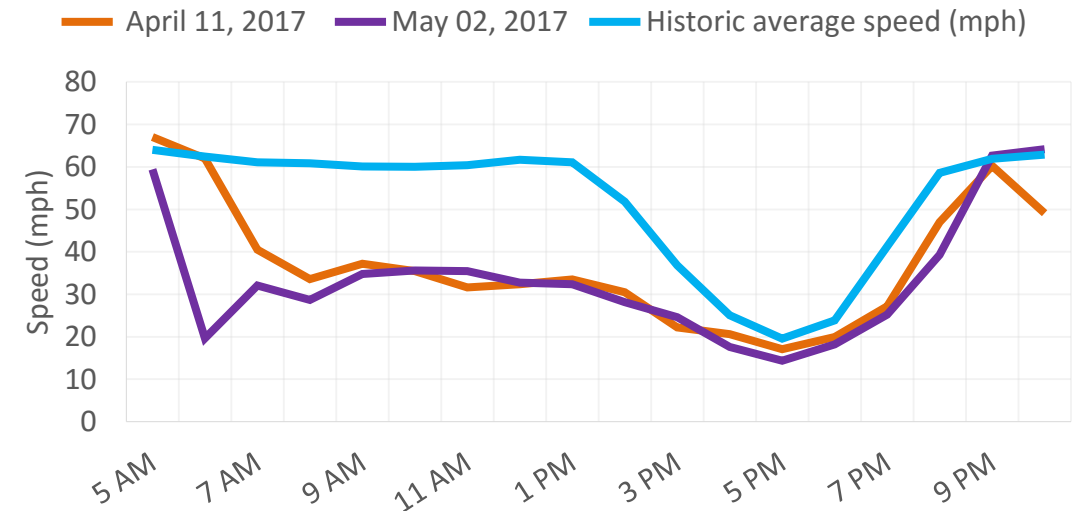
This slide shows the I-285 corridor between I-75 and GA 400. As the charts show, on both “analysis” days, speeds decreased (compared to the historical average) throughout the day in both directions.

- **Orange Line:** Average travel speed by hour – Tuesday, April 11
- **Purple Line:** Average travel speed by hour – Tuesday, May 2
- **Blue Line:** Historic average speed by hour on Tuesdays

I-285 (I-75 to GA-400) clockwise Recent speed vs. historic speed

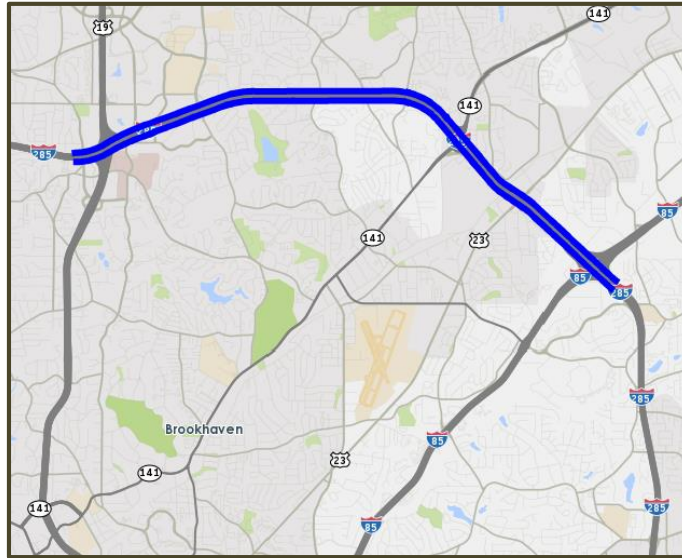


I-285 (I-75 to GA-400) counter-clockwise Recent speed vs. historic speed



Corridor speed analysis

I-285: GA 400 to I-85



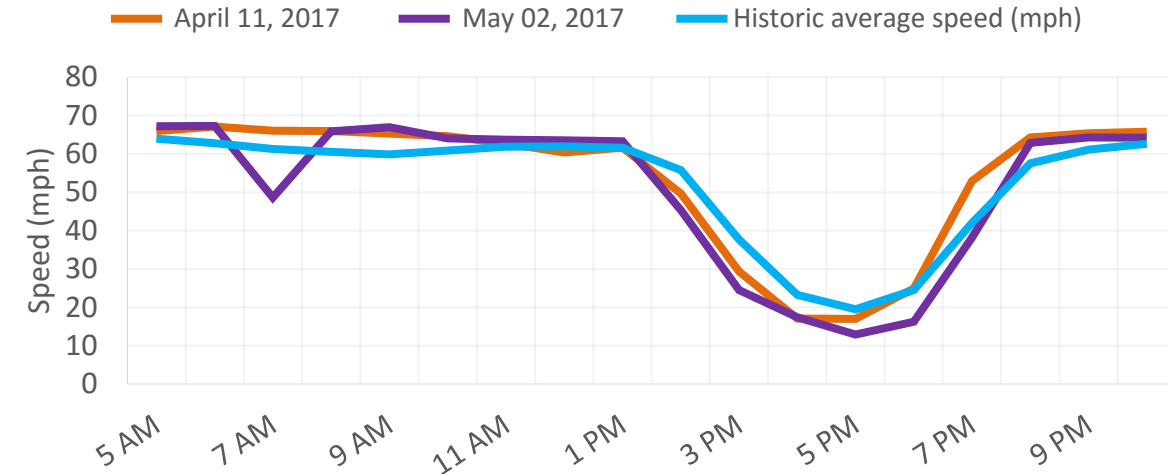
We analyzed several corridors at two different points in time after the bridge collapse. We then compared speeds on those days to historic speeds along that corridor.

This slide shows the I-285 corridor between GA 400 and I-85. As the charts show, speeds in the counter-clockwise direction (west-bound) were significantly slower, but the speeds in the other (clockwise) direction were mostly normal.

- **Orange Line:** Average travel speed by hour – Tuesday, April 11
- **Purple Line:** Average travel speed by hour – Tuesday, May 2
- **Blue Line:** Historic average speed by hour on Tuesdays

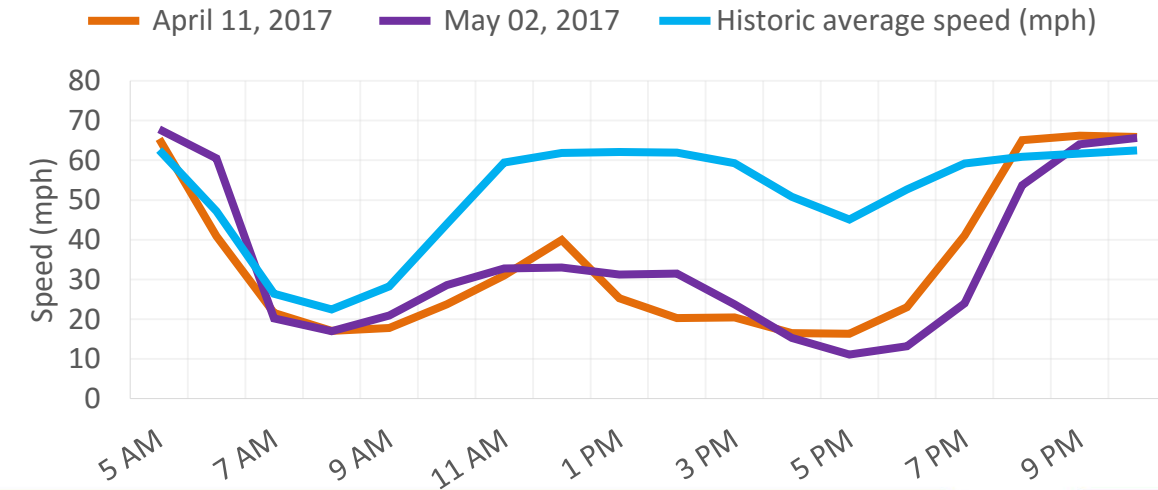
I-285 (GA 400 to I-85) clockwise

Recent travel speeds vs. historic speed

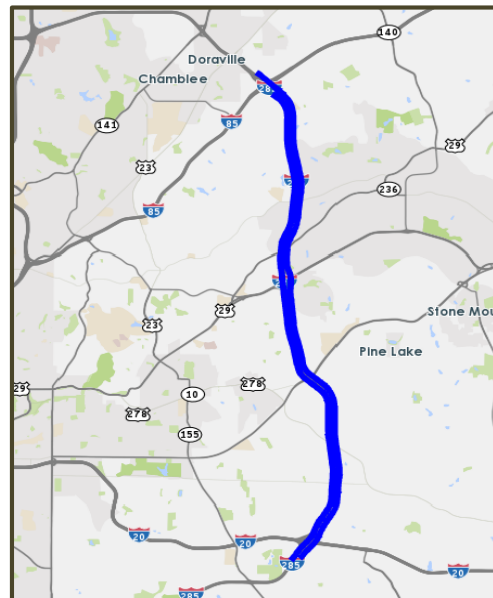


I-285 (GA 400 to I-85) counter-clockwise

Recent travel speeds vs. historic speed



Corridor speed analysis: I-285: I-85 to I-20E

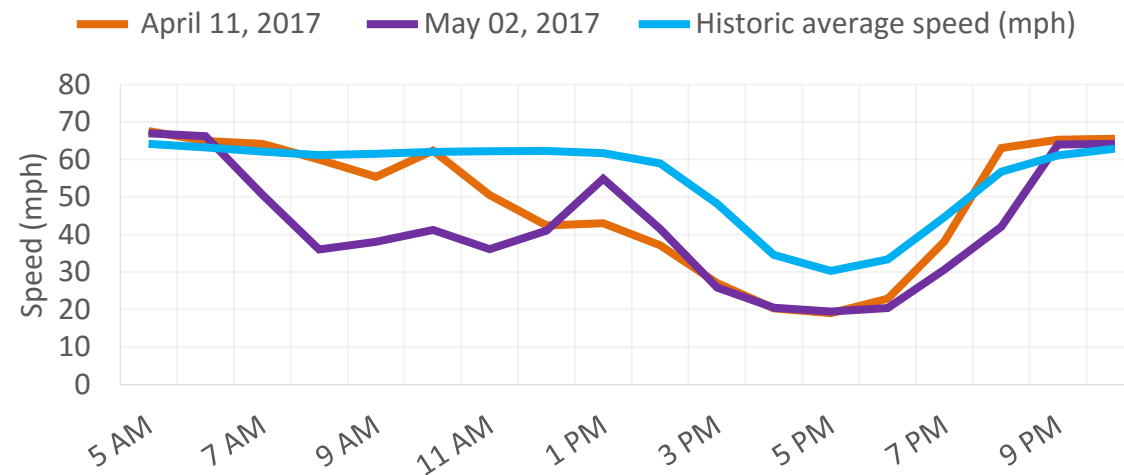


We analyzed several corridors at two different points in time after the bridge collapse. We then compared speeds on those days to historic speeds along that corridor.

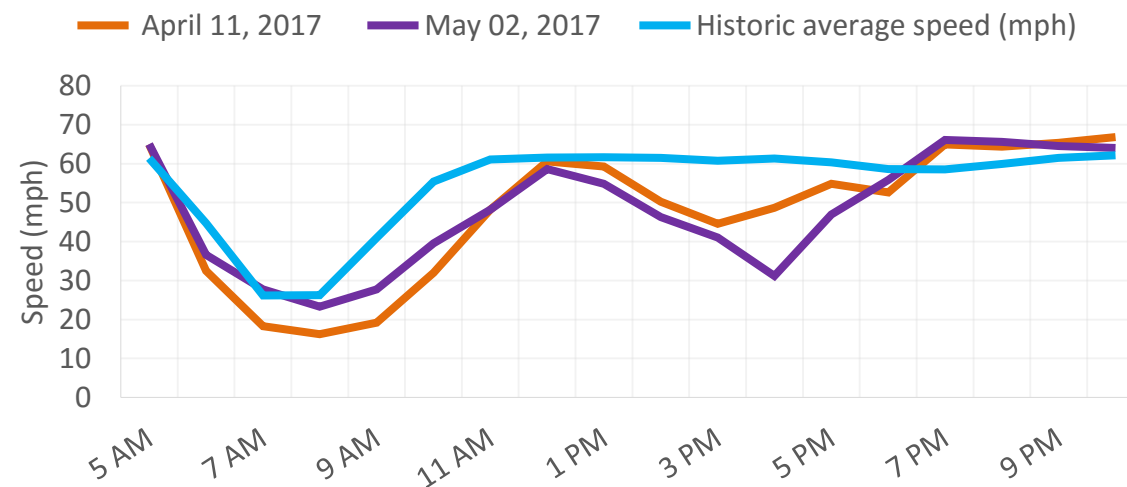
This shows the I-285 corridor between I-85 and I-20E. As the charts show, speeds in both directions were slower, particularly in the PM peak period. But speeds for May 2 were slower than on April 11 during the AM peak, suggesting that more commuters shifted to this south-bound segment during the aftermath.

- **Orange Line:** Average travel speed by hour – Tuesday, April 11
- **Purple Line:** Average travel speed by hour – Tuesday, May 2
- **Blue Line:** Historic average speed by hour on Tuesdays

I-285 (I-85 to 20E) clockwise Recent speed vs. historic speed



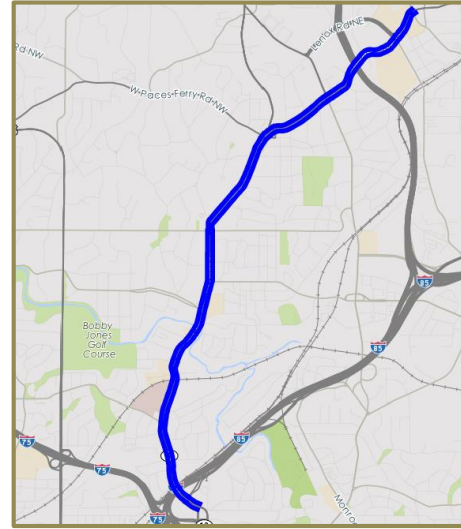
I-285 (I-85 to 20E) counter-clockwise Recent speed vs. historic speed



Corridor speed analysis: Peachtree Rd (Spring St to Wieuca)

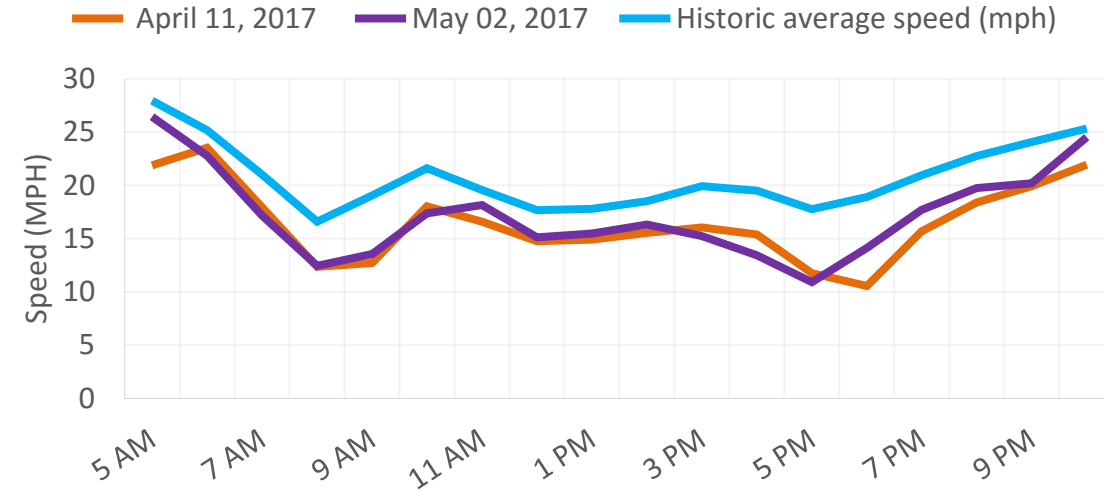
We analyzed several corridors at two different points in time after the bridge collapse. We then compared speeds on those days to historic speeds along that corridor.

This shows Peachtree Rd. between Spring St. and Wieuca. As the charts show, speeds in both directions were slower, particularly in the PM peak period.

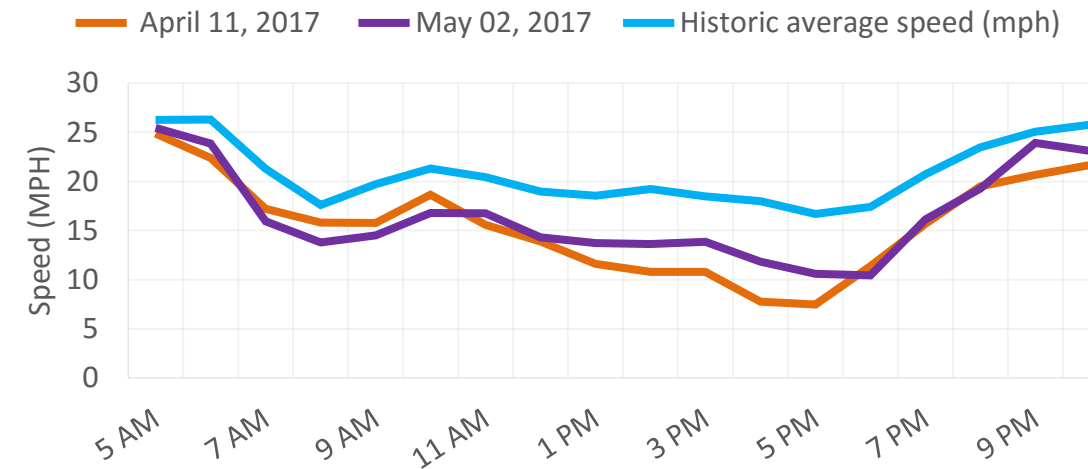


- **Orange Line:** Average travel speed by hour – Tuesday, April 11
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- **Blue Line:** Historic average speed by hour on Tuesdays

Peachtree Rd northbound Recent speed vs. historic speed



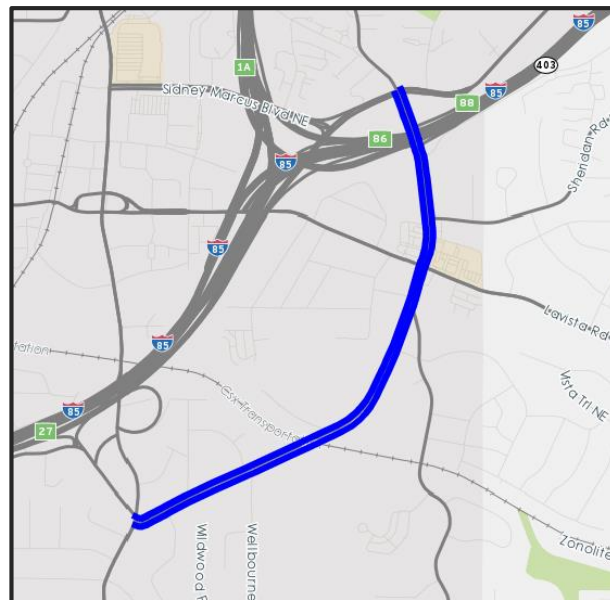
Peachtree Rd southbound Recent speed vs. historic speed



Corridor speed analysis: Cheshire Bridge Rd

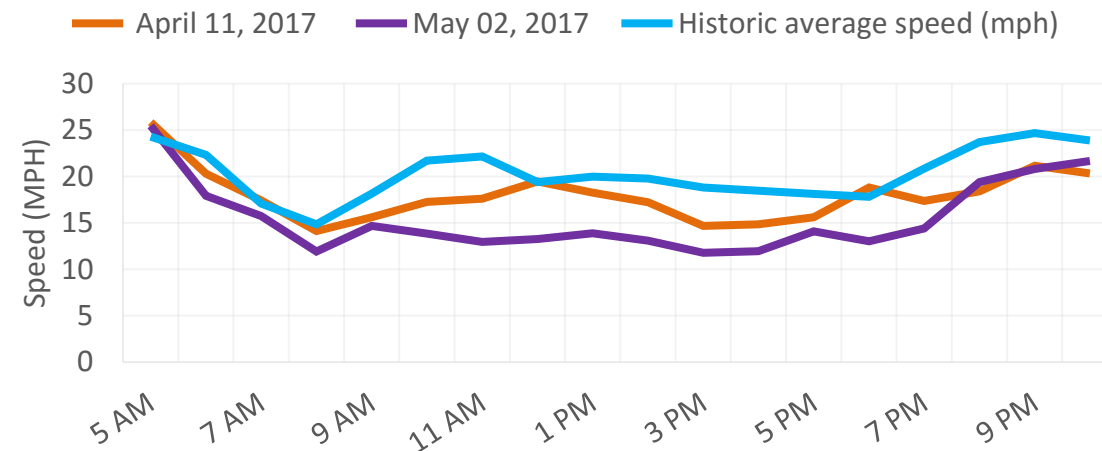
We analyzed several corridors at two different points in time after the bridge collapse. We then compared speeds on those days to historic speeds along that corridor.

This shows Cheshire Bridge Rd. As the charts show, speeds were slower in both directions, but were significantly slower in the southbound direction--traveling away from the affected area.

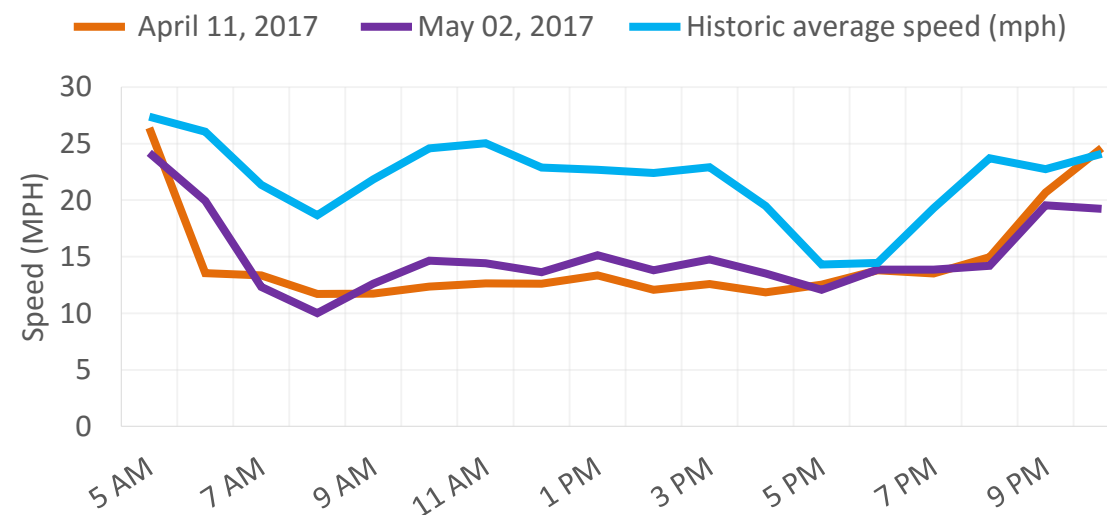


- **Orange Line:** Average travel speed by hour – Tuesday, April 11
- **Purple Line:** Average travel speed by hour – Tuesday, May 2
- **Blue Line:** Historic average speed by hour on Tuesdays

Cheshire Bridge Rd northbound Recent speed vs. historic speed



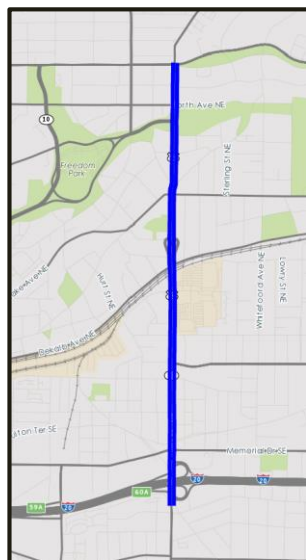
Cheshire Bridge Rd southbound Recent speed vs. historic speed



Corridor speed analysis: Moreland Ave

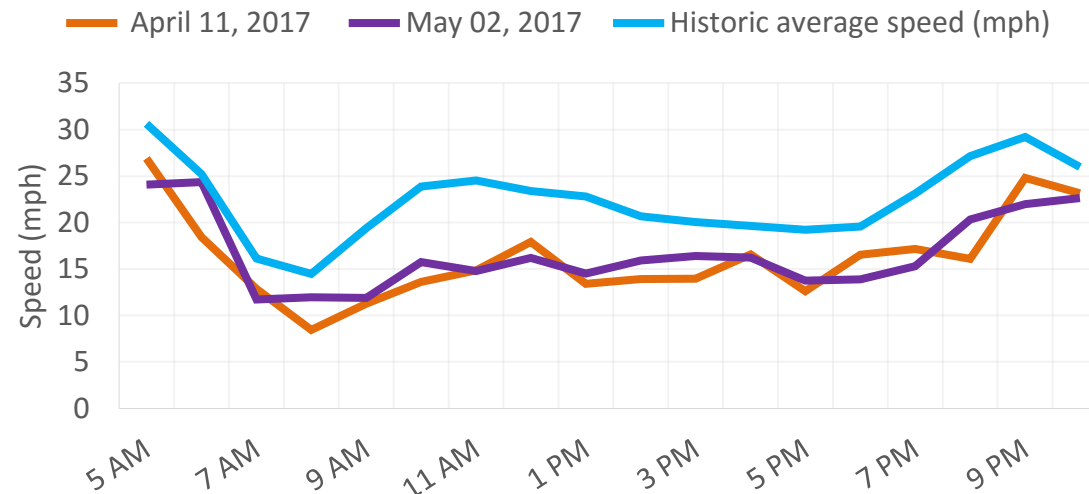
We analyzed several corridors at two different points in time after the bridge collapse. We then compared speeds on those days to historic speeds along that corridor.

This shows Moreland Ave. As the charts show, speeds were slower in the AM Peak in both directions, but were even slower in the northbound direction during the PM peak.

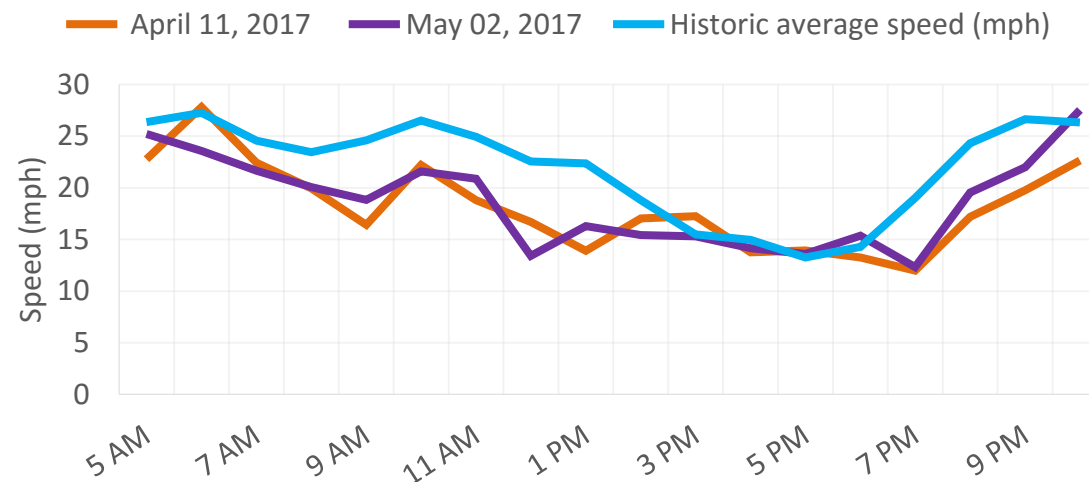


- **Orange Line:** Average travel speed by hour – Tuesday, April 11
- **Purple Line:** Average travel speed by hour – Tuesday, May 2
- **Blue Line:** Historic average speed by hour on Tuesdays

Moreland Ave northbound Recent speeds compared to historic speed



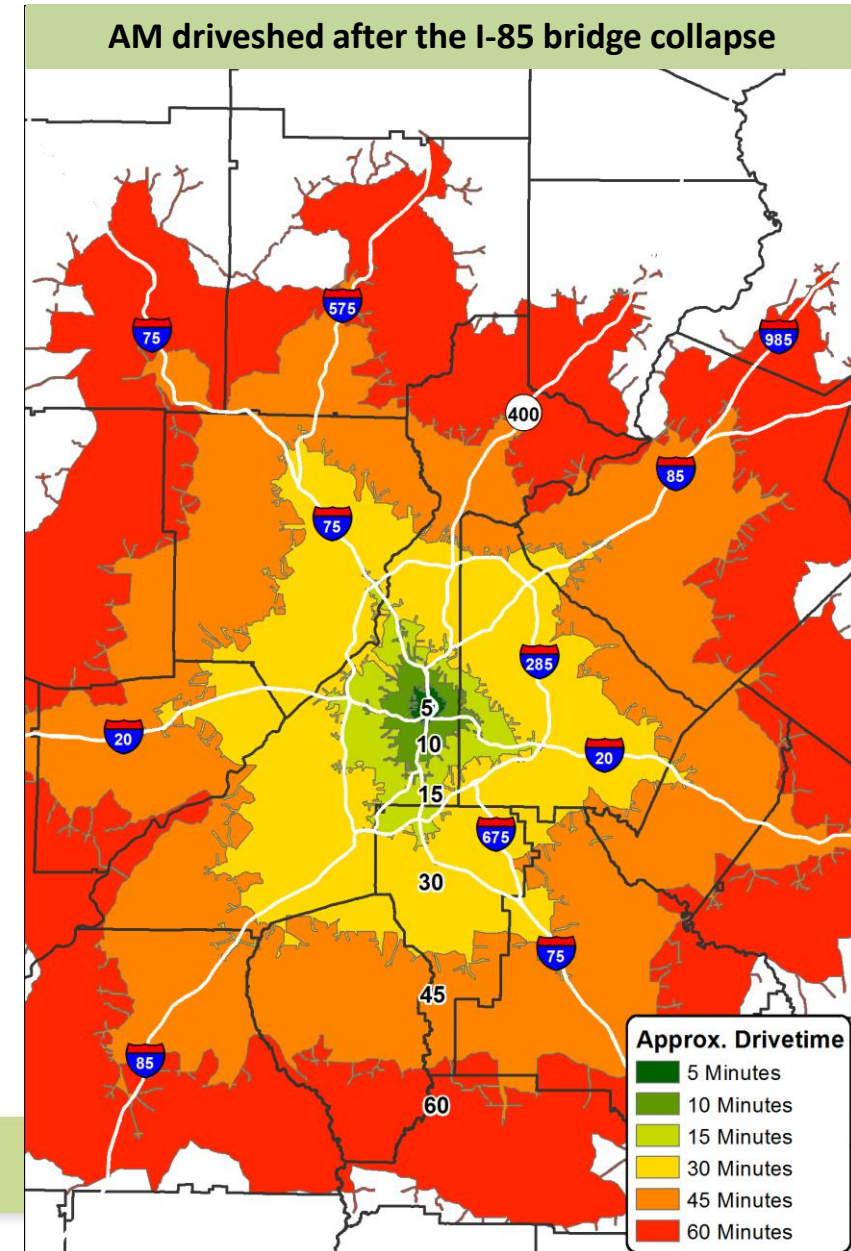
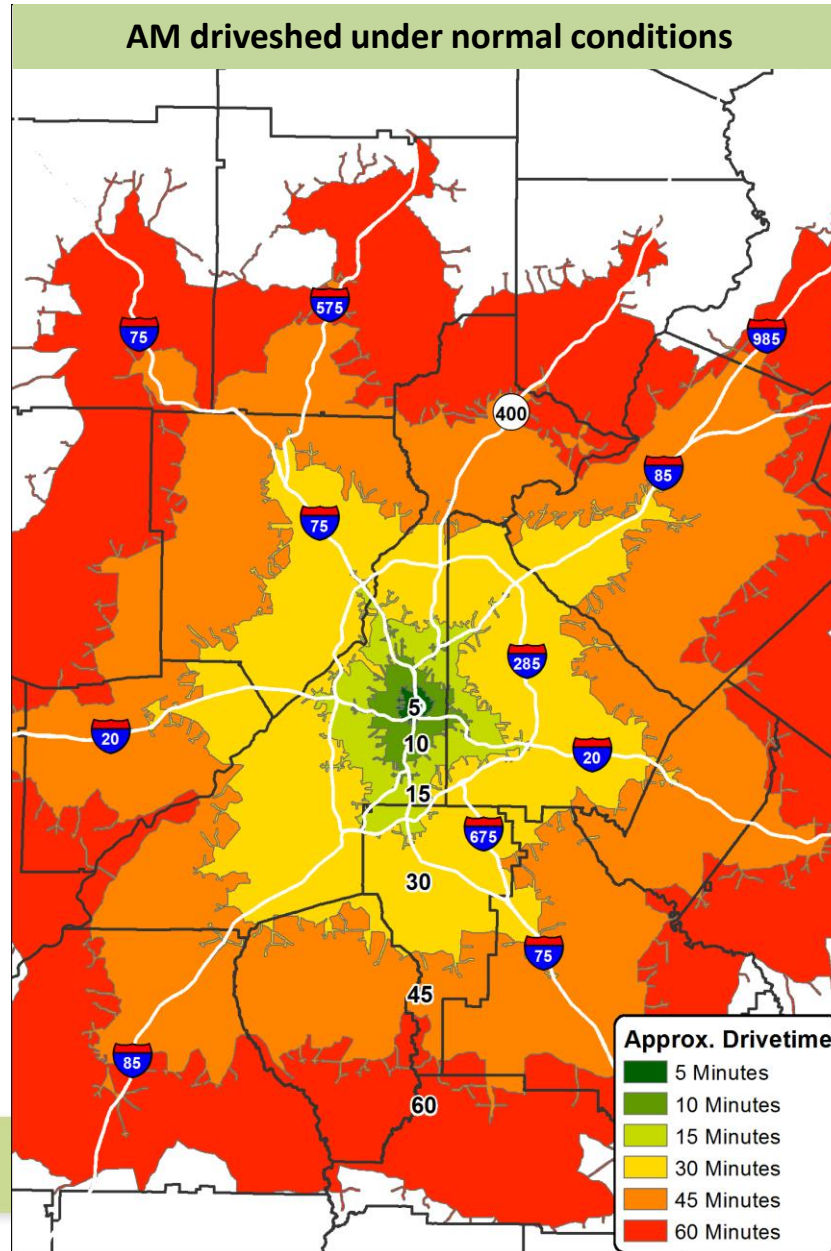
Moreland Ave southbound Recent speeds compared to historic speed



Driveshed analysis from Central Atlanta TMA (Transportation Management Association)

These maps show the change in where commuters from the Central Atlanta TMA can drive in 5 minutes, 10 minutes, etc.

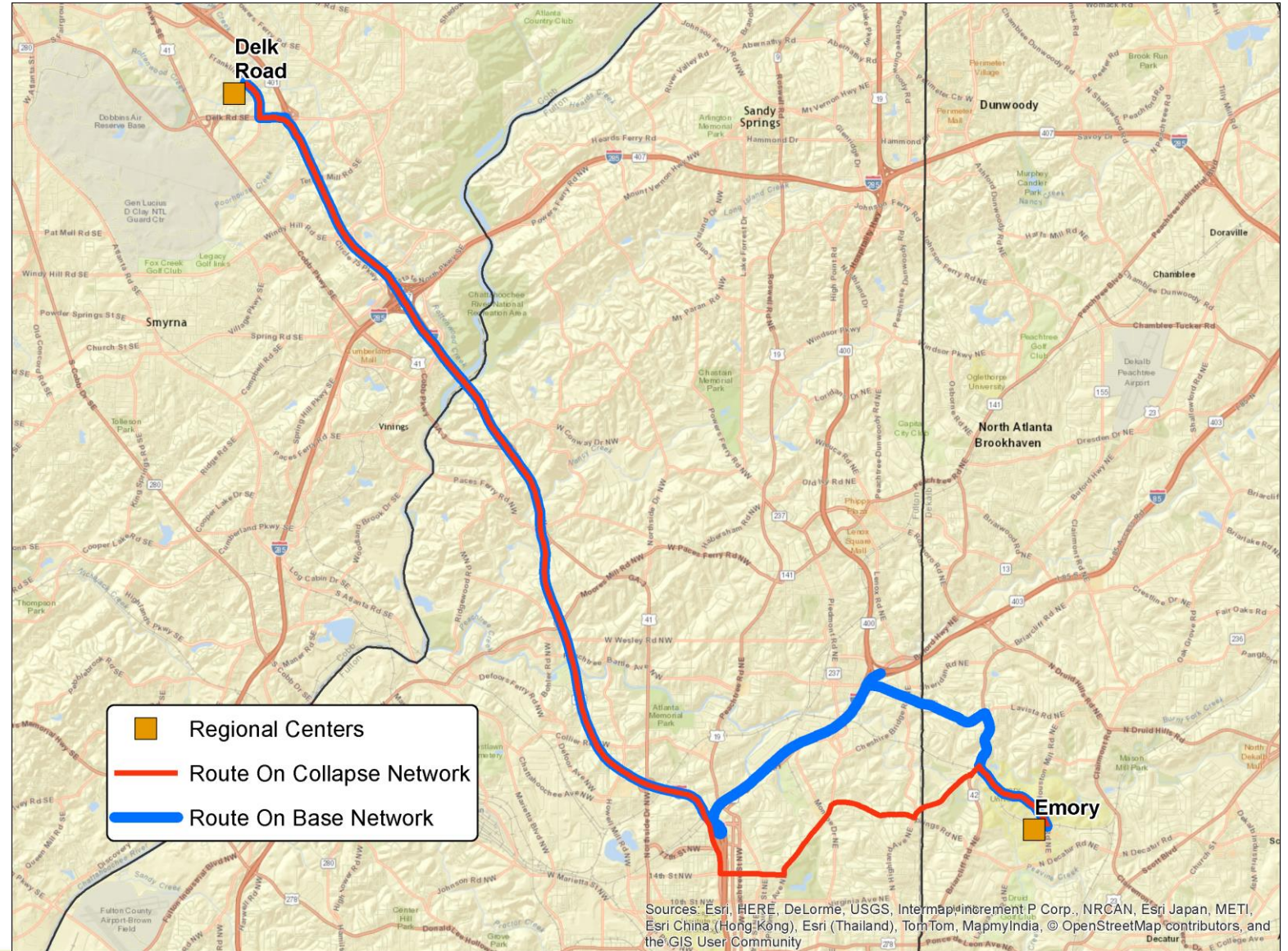
The areas accessible within 15 and 30 minutes from downtown shrank considerably when comparing before and after the collapse. In fact, after the collapse, most of Gwinnett County was no longer accessible from downtown within 30 minutes.



Travel time example

Using GIS software that chooses the best routes on a roadway network given historical speeds, we calculated a route from the Delk Rd. activity center to the Emory area.

- The **blue** line shows the route and travel time under normal conditions, which uses primarily the Interstate system and takes around 40 minutes
- The **red** line shows the route and travel time accounting for the I-85 bridge collapse, which uses back streets and takes about 50% longer.

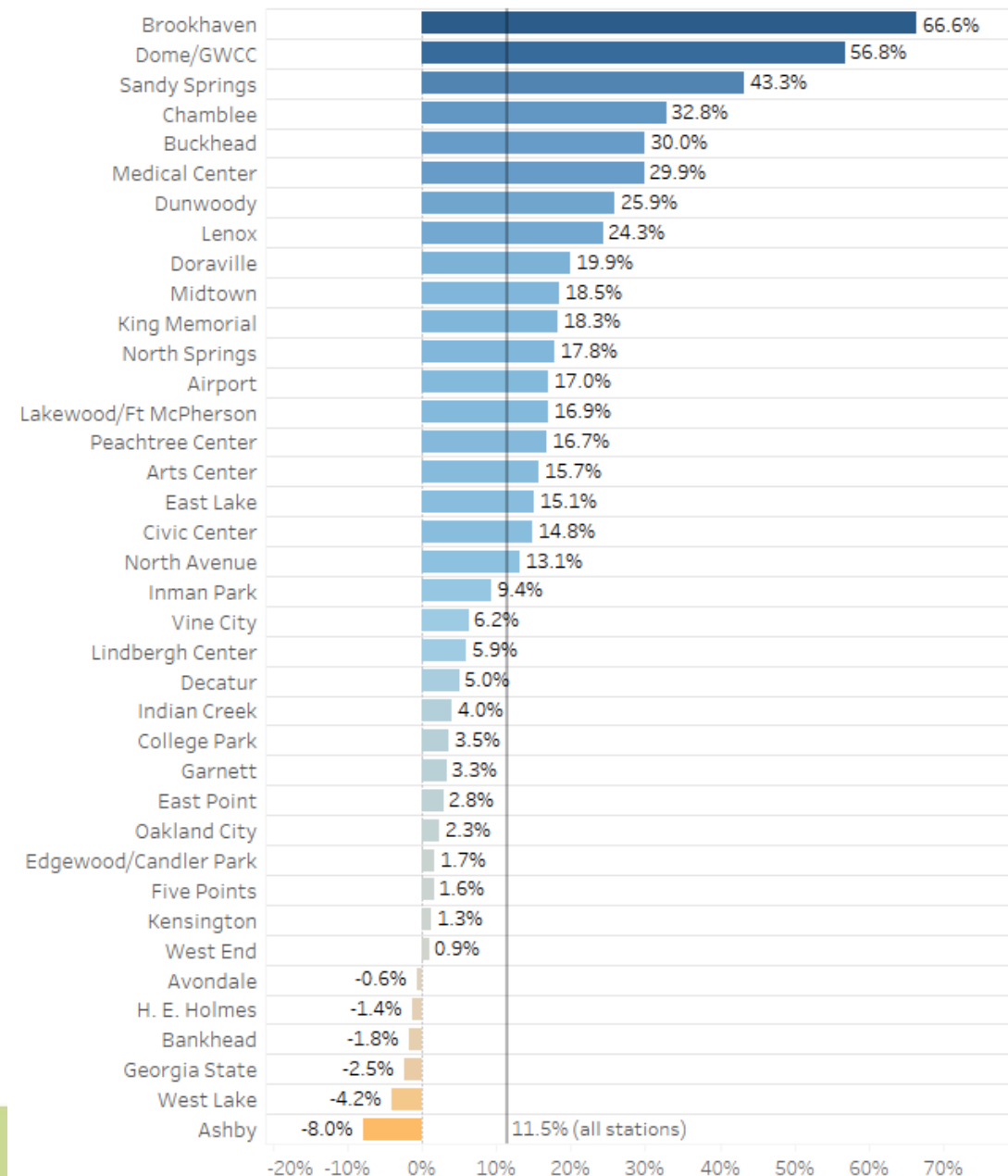


Transit usage

This chart uses MARTA ridership data to show the change in average weekday ridership by rail station before and after the I-85 bridge collapse.

- The chart compares the average number of riders boarding stations on weekdays during March 31 – April 29 (after the collapse) to the average number of riders during weekdays March 24 – 31 (before the collapse).
- The MARTA stations in **blue** had the greatest percentage increase in ridership. Many of the northern stations experienced large increases, such as the Brookhaven station which had a 67 percent increase in ridership.

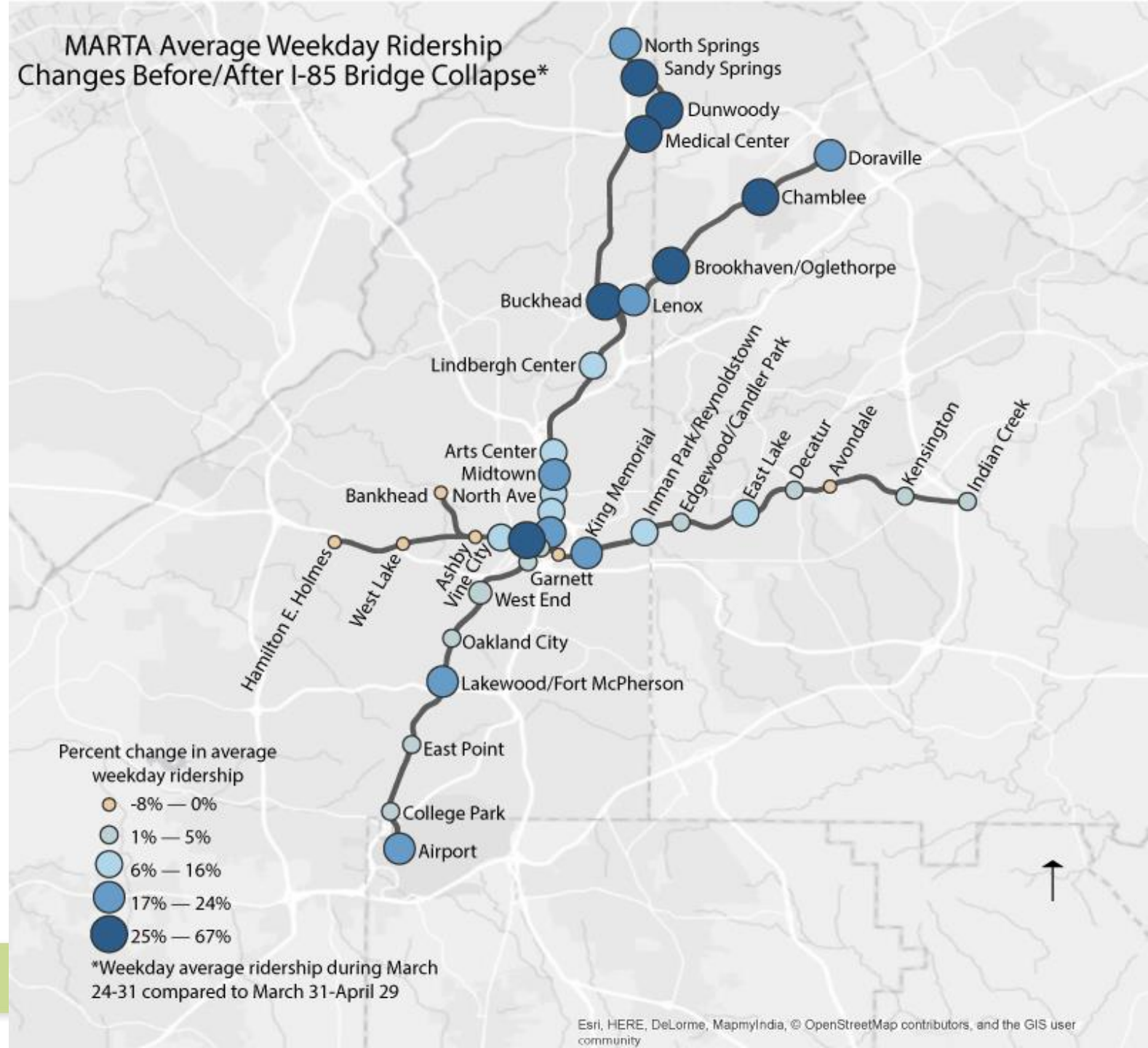
MARTA average weekday ridership changes
before/after I-85 bridge collapse *



Transit usage

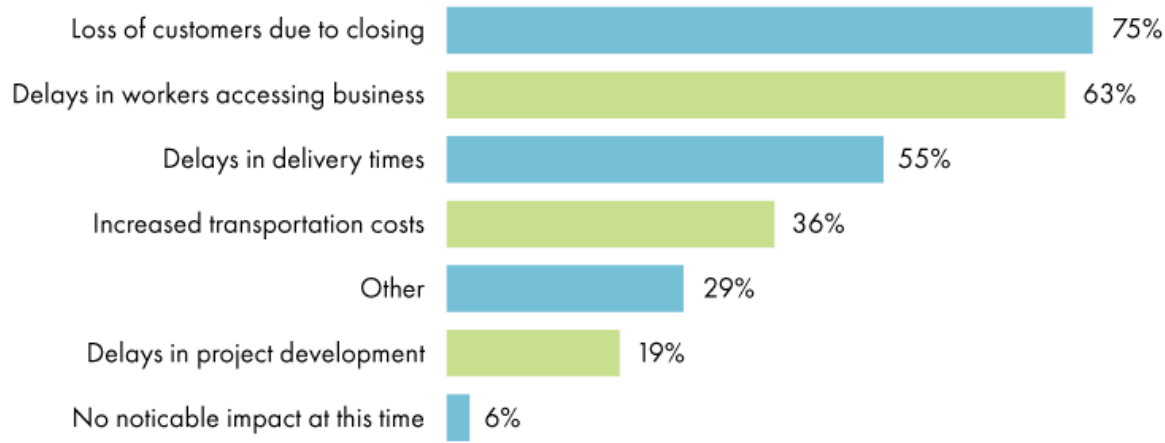
This map uses the same MARTA ridership data to show the change in average weekday ridership by station.

- The circles are symbolized by the percentage values shown in the previous chart.
- The MARTA stations symbolized by large **blue** circles had the greatest percentage increase in ridership. Many of the northern stations experienced large increases.



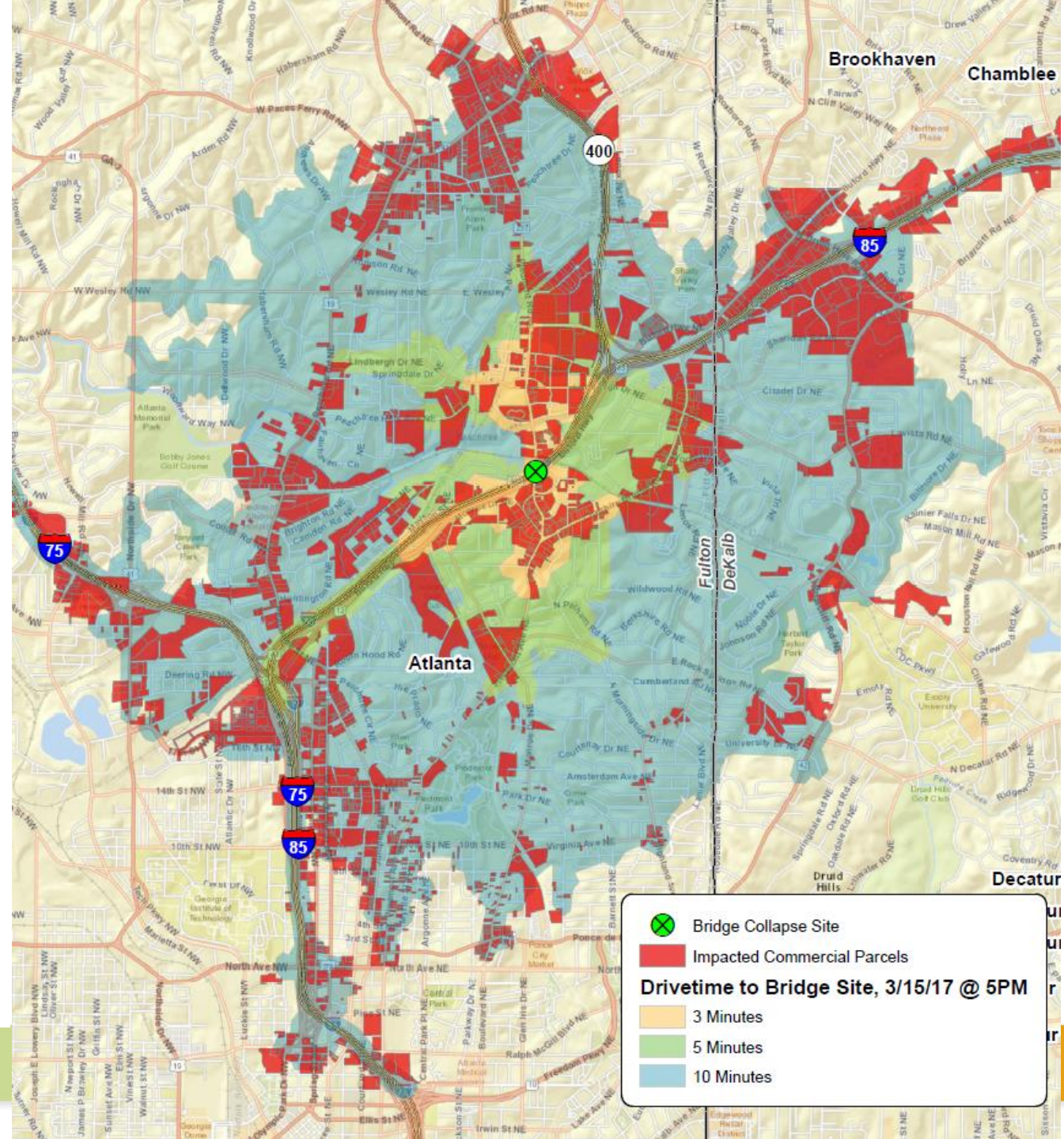
Business impact

- The red on the map shows commercial parcels within 3, 5, and 10 minutes drive to the site of the bridge collapse under normal conditions
- The Invest Atlanta “I-85 Business Impact Survey” found that 75% of impacted businesses in the area had experienced a loss of customers due to the I-85 closure.



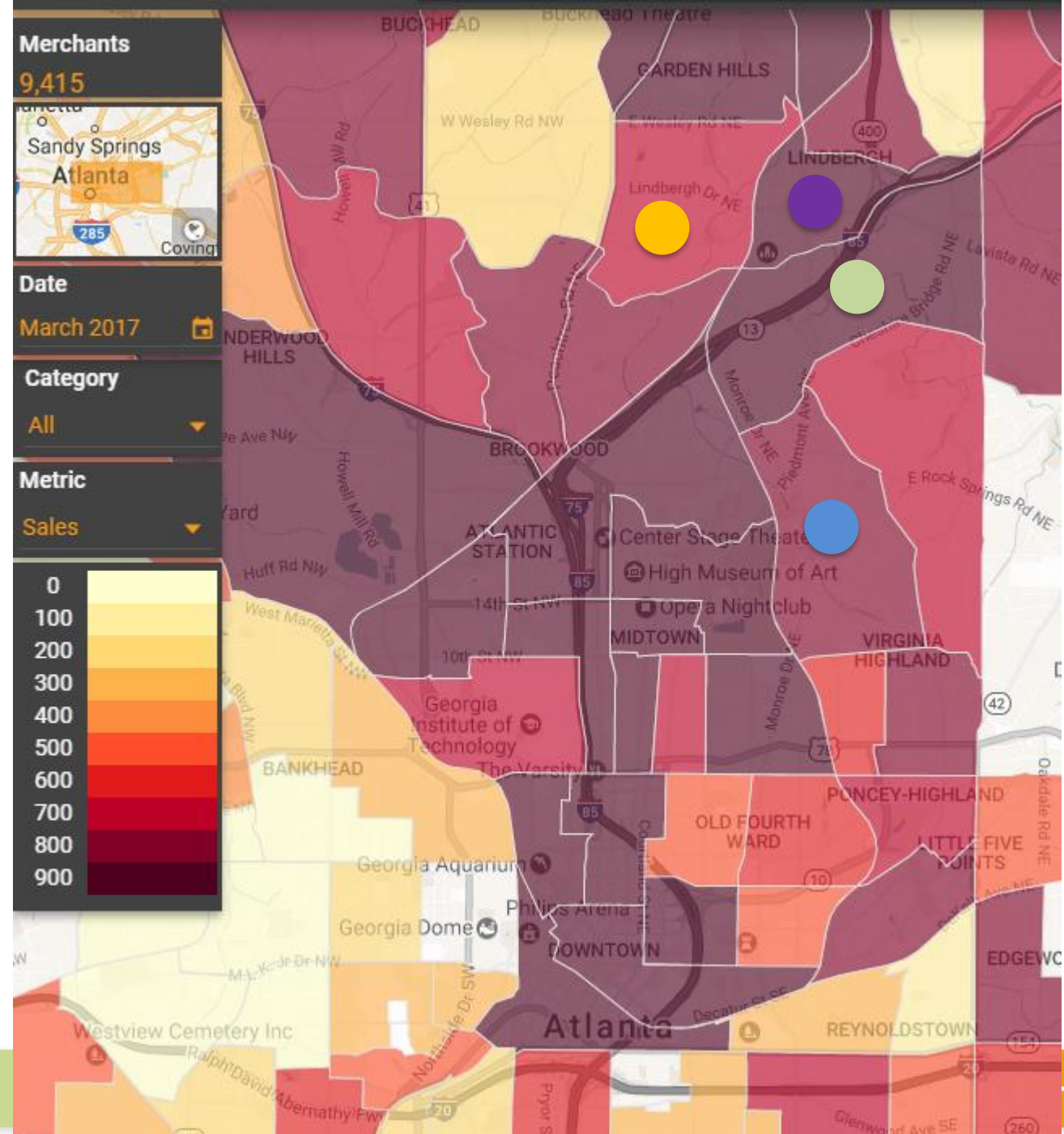
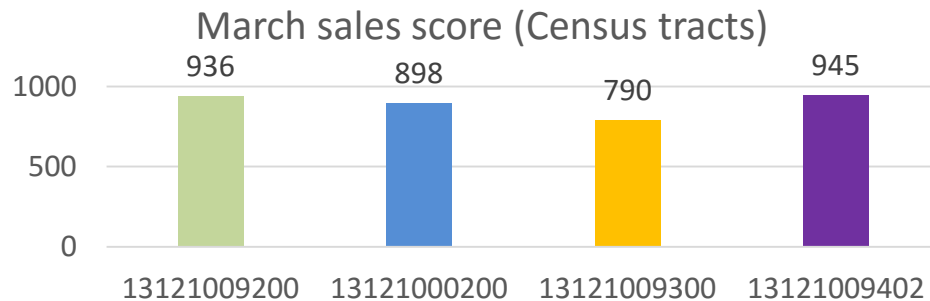
Data as of May 2, 2017

Source: ARC analysis, Fulton County parcels; [Invest Atlanta](#)



Business impact- baseline data

- This map uses Mastercard retail data to evaluate the strength of sales in particular areas. The census tracts in the vicinity of the I-85 bridge collapse area had some of the highest retail sales (red) when compared to other census tracts in the nation.
- The Mastercard data evaluates retail performance using scores from 1 to 1,000, with a score of 1,000 representing the highest possible value. The scores in the chart below are the sales scores for March for four census tracts surrounding the collapse site. The colors correspond with the location dots on the map. When data for April is available, these scores will be compared to assess impacts.



Examples of responses

- GDOT Detours in place
 - Altering signal timing
 - Increasing capacity substantially on arterial streets
- Local governments adding police to intersections to ensure that people “Don’t Block the Box”
- City of Atlanta suspending all non-essential roadwork
- Transit systems have implemented route adjustments to avoid the I-85 closure
- MARTA has increased headways on rail system during peak travel periods and added nearly 1,200 new parking spaces
- Gwinnett County and GRTA added routes from park and ride lots to MARTA’s Chamblee and Doraville stations

