

# Federal Transit Administration

## Service and Fare Equity

### Training Overview for FTA Funding Recipients



# Title VI

“No person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.”

*42 U.S.C § 2000d, et seq*



# Race, Color & National Origin: the three protected classes

- **Race**
  - U.S. Census categories define race
  - Persons of *any* race are protected classes
- **Color**
  - Discrimination based on skin color or complexion is prohibited
- **National Origin**
  - Foreign born ancestry



# “Program or Activity”

## Applies institution-wide

- Title VI applies *institution-wide*; it is *not* limited to the program that receives FTA funding (e.g., planning, capital, operations)
- Examples?
- Are Title VI requirements limited to primary recipients?



# Title VI Applies to Recipients & Subrecipients

- **Recipient**

- State DOT
- Transit Agency
- Any public or private agency, institution, department or other organizational unit receiving funding from FTA



- **Subrecipient**

- Any entity that receives FTA financial assistance as a pass-through from another entity



# Discrimination Prohibitions

- **Disparate Treatment** (**Intentional Discrimination**):  
Actions that result in circumstances where similarly situated persons are treated differently because of their race, color, or national origin.
- **Disparate Impact** (**Unintentional Discrimination**):  
The recipient's procedure or practice, while neutral on its face, has the effect of disproportionately excluding or adversely affecting members of the projected class without substantial legitimate justification.

*Examples?*



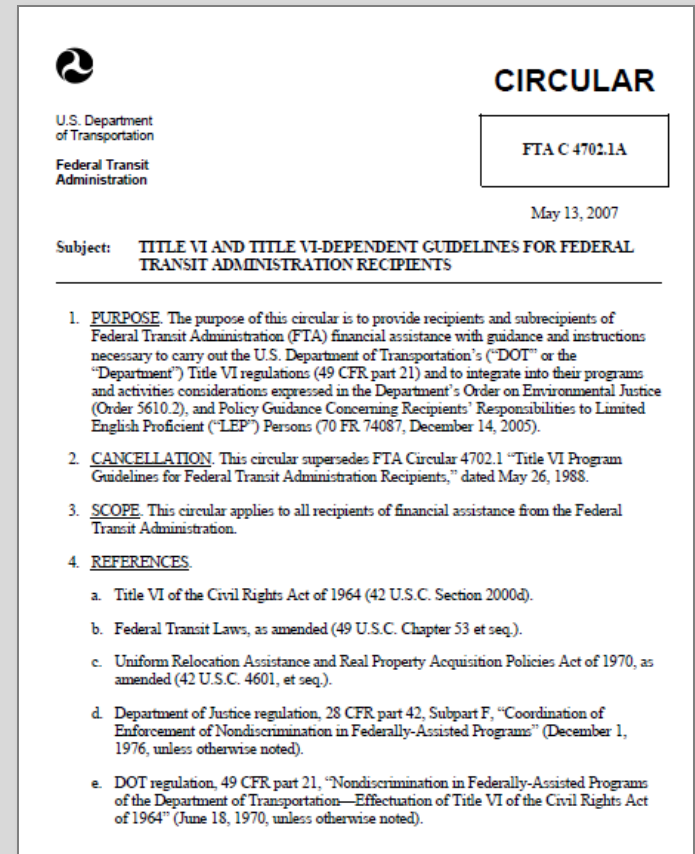
# Title VI & FTA Grantees



# Letter of Title VI & FTA

## Circular 4702.1A

- FTA direct grant recipients must meet Title VI obligations defined in “The Circular”
- Requires analysis of low-income populations
- Submission cycle
  - Direct recipients every 3 years
  - MPOs every 4 years



[http://www.fta.dot.gov/documents/Title\\_VI\\_Circular\\_4702.1A.pdf](http://www.fta.dot.gov/documents/Title_VI_Circular_4702.1A.pdf)





# Spirit of Title VI & FTA

- Minorities made up the majority of zero-car households (60%) while representing only 31% of the total population.
  - That means they are **TWICE** as likely as non-minorities to not have access to a car.
- While households below the poverty line made up 15% of the population, they made up 38% of zero-car households.
  - That means they are **2.5 TIMES** more likely than persons not-in-poverty to not have access to a car.



*2000 US Census of Population and Housing, 5% PUMS Data*



# The Service & Fare Equity Analysis

- **When:** Conducted at programming stage
- **Who:** Urbanized area with population of 200,000 or more that proposes major service change or fare change (Note: There is no threshold for fare changes – one penny makes a fare change.)
- **Why:** Required by FTA Circular 4702.1A



# Define “Major” Service Changes

- Establish guidelines in the Title VI Plan
- Often defined as a numerical **threshold**
  - e.g. change effects greater than 25% of service hours on any route



# Purpose of the Analysis

- Analyze how the proposed changes impact low-income & minority populations
- Identify whether there will be a disproportionate impact
- Identify methods to avoid, minimize, and mitigate disproportionate impacts



# Purpose of the Analysis (cont.)

*“Recipients can implement a service/fare increase that would have disproportionately high and adverse effects provided that the recipient (1) demonstrates that the action meets a substantial need that is in the public interest; and (2) that alternatives would have more severe adverse effects than the preferred alternative.”*

Circular 4702.1A, Title VI Guidelines for FTA Recipients



## Option A:

**Create Maps**

**Span of Service,  
Modes**

**Assess Alternatives**

**Travel Time, Cost**

**Determine if  
disproportionate impact**

**Mitigate**

**Most use  
Option B**

## Option B: Create your own method

**Evaluate changes  
during planning**

**Explain your own  
methodology**

**Determine if  
disproportionate  
impact**

**Identify Alternatives  
& Mitigate**

# Fare and Service Equity Analysis Examples

- For *illustrative* purposes only
- Analysis must reflect local conditions and scope of service/fare changes
- These examples do not reflect a “minimum” or “maximum” level of analysis required by FTA
- Threshold for low-income and minority populations are *location based*



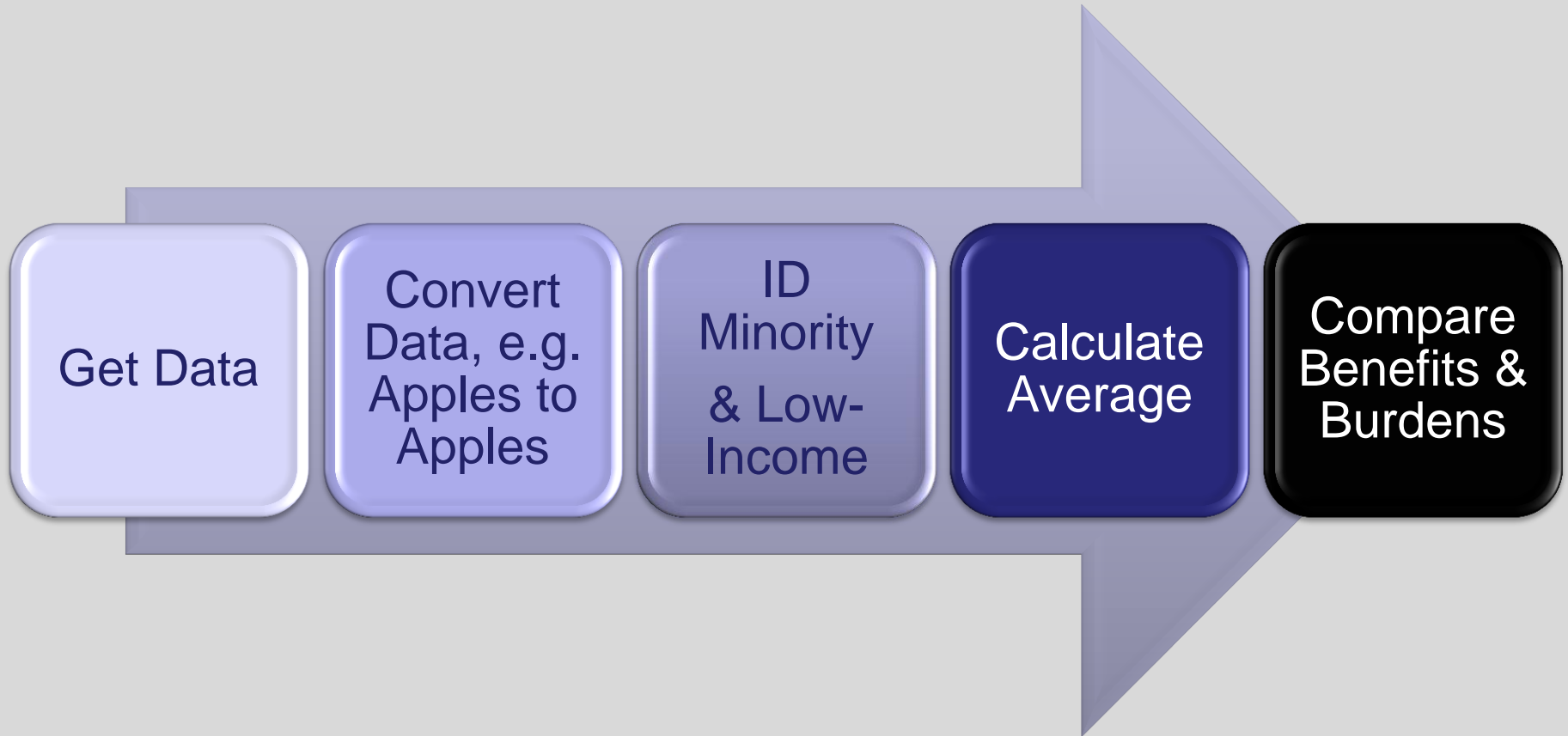
# Pre-Analysis Considerations

- What dataset(s) will you use?
- At what geographic levels will you assess disparate impacts? (by route, for the entire service area, ...)
- At what geographic level will you measure minority and low-income concentrations? (census tract, block group, TAX, ... or by ridership)
- Within which population will you identify disparate impacts? (riders, service area population, ...)
- Regardless of option: analytical method for determining disparate impact





# Customary Analysis Steps



# Assemble Information Needed for Analysis (i.e. GET DATA)

- Ridership Data
  - Automated Passenger Counts (APC)
  - Transit Rider Survey
- Demographic Data
  - U.S. Census
  - Local Data
- GIS Layers
  - Census Tract or Traffic Analysis Zone (TAX)
  - Route maps

*A TAX is a special area delineated by state and/or local officials for tabulating traffic-related data*



# Demographic Data for GIS Analysis

- Obtain Census tract- or Traffic Analysis Zone-level Household data
  - Race
  - Color
  - Income
  - National origin

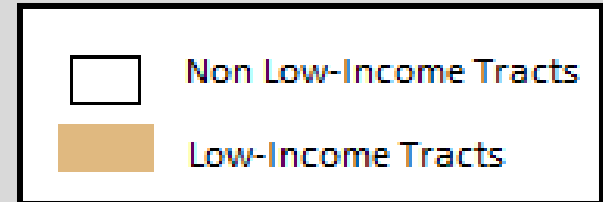
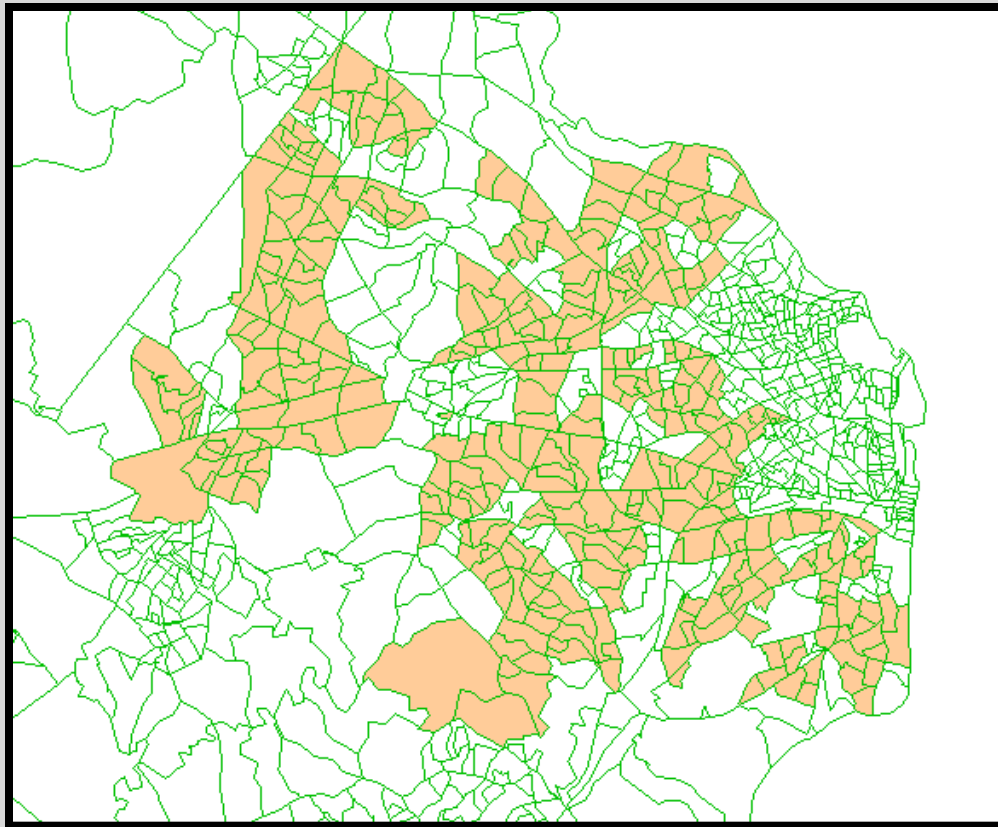


# Ridership Data for Rider Analysis

- Identify transit riders using affected routes
  - Route change
  - Headway change
  - Span of service change
  - Fare change
- Identify minority and low-income riders



# GIS Analysis - Map Predominantly Low-Income Areas



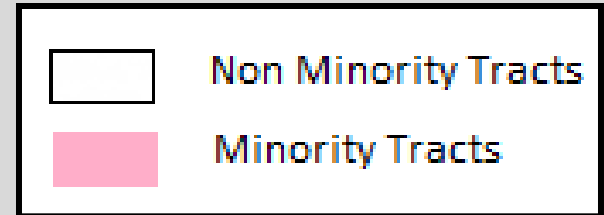
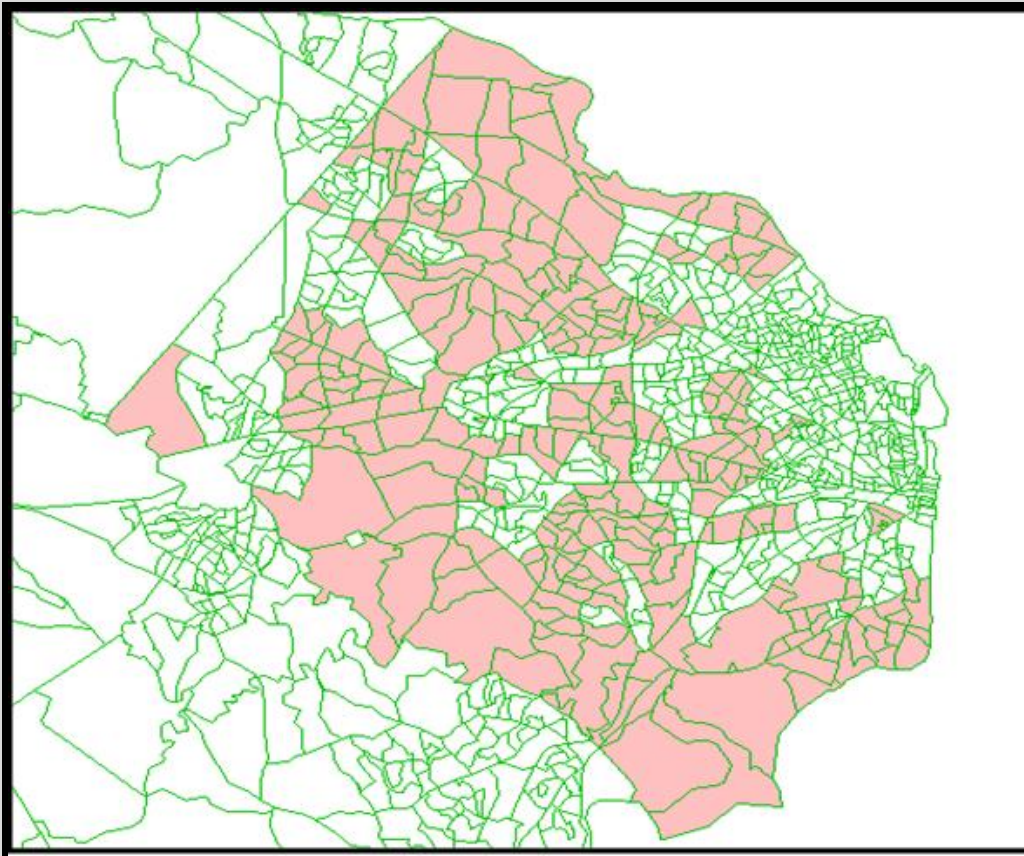
*Low-income threshold of 35% determined by total regional population*

***For this analysis, low-income means a person whose median household income is at or below the U.S. Department of Health and Human Services poverty guidelines.***



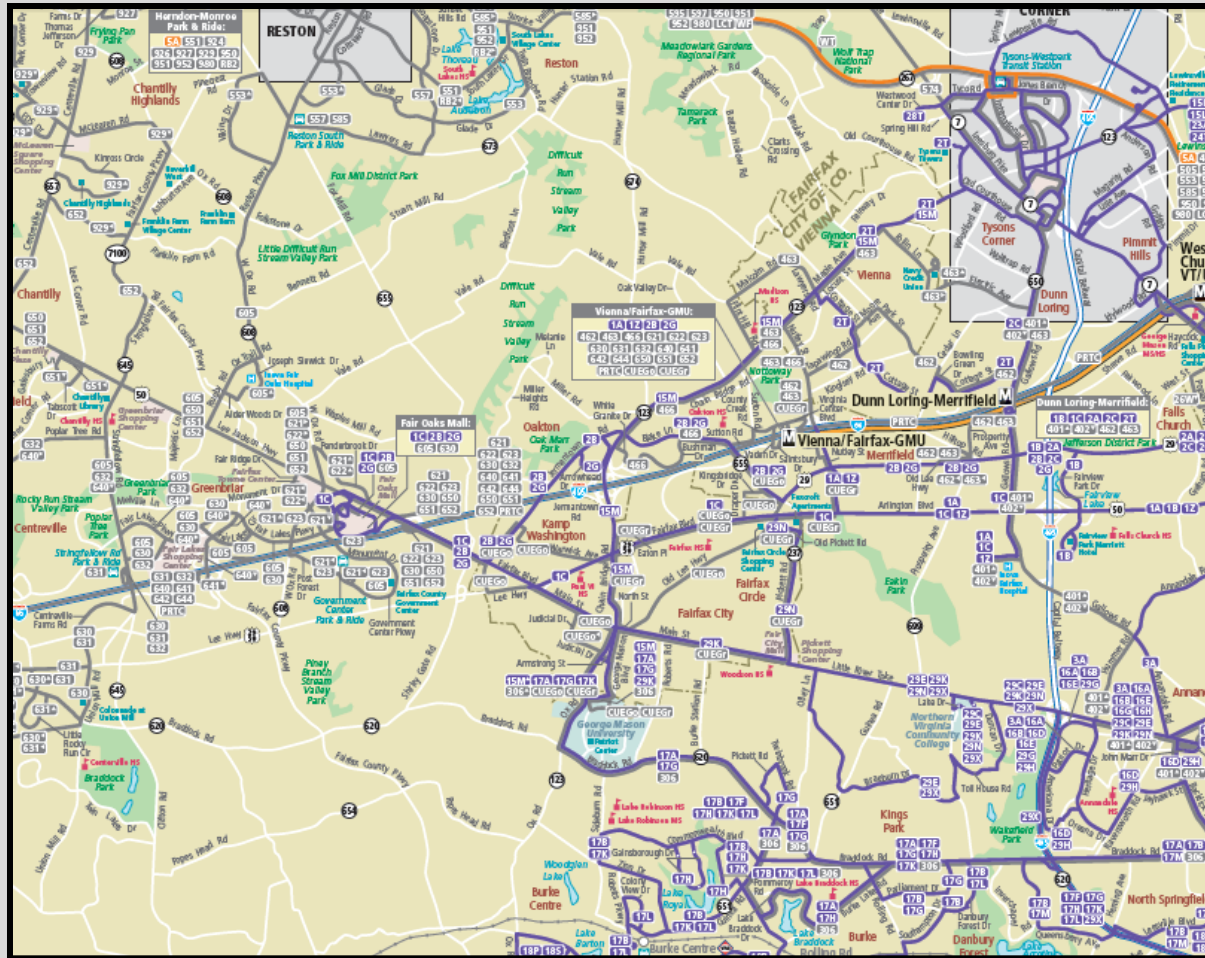
# GIS Analysis - Map

## Predominantly Minority Areas

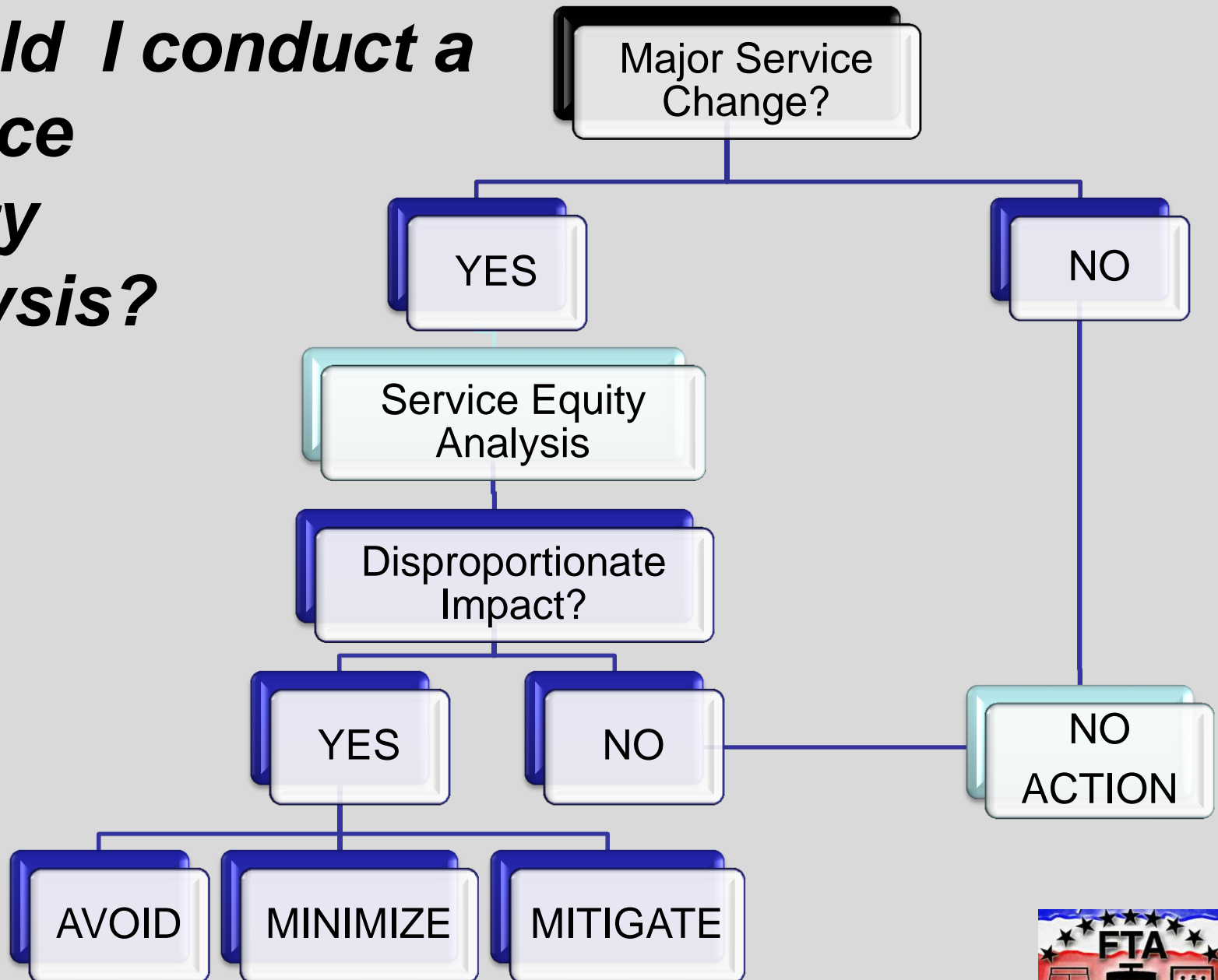


*Minority threshold  
of 37% determined  
by total service  
area population*

# GIS Analysis – Map Existing Transit Routes



# Should I conduct a Service Equity Analysis?

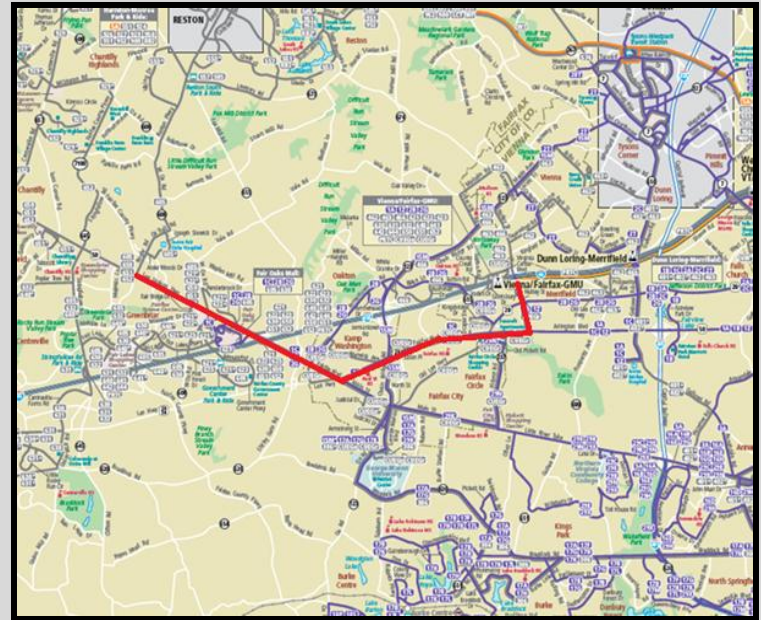




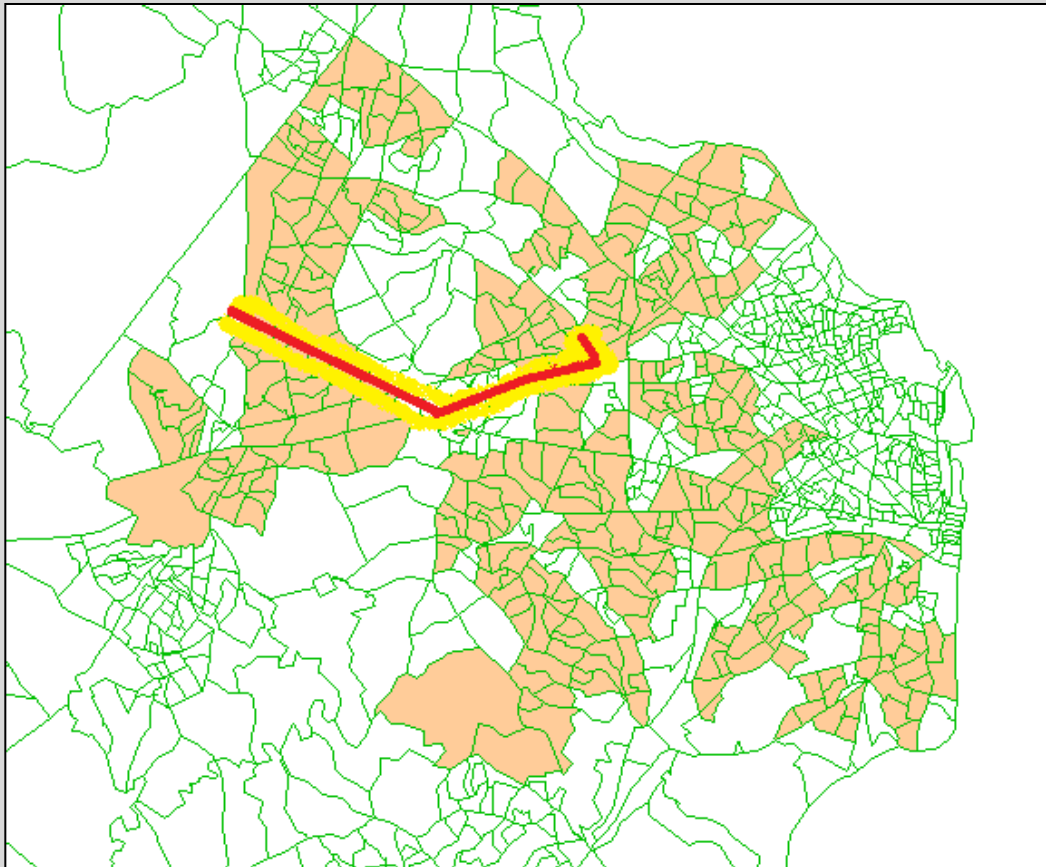
# Example A: Service Change

Analysis must identify impacts of service change to:

1. Low-income and minority populations
- AND
2. Transit riders (by low-income and minority status)



# GIS Analysis - Overlay Affected Route to Determine Low-Income Tracts

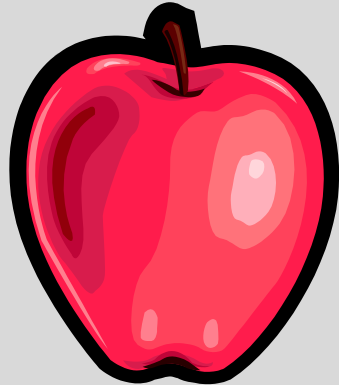


1/4 mile buffer is used to identify the affected population

# Golden Rule for Preparing Service Equity Analysis

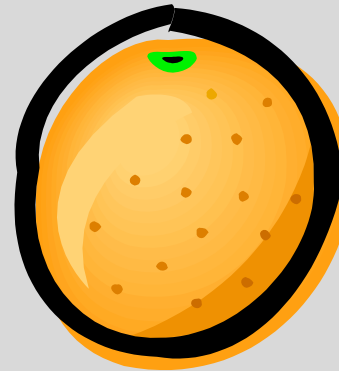


Apples



to Apples

Oranges



to Oranges



# Calculate Effects of Service Change

## Regional Population Data

Total Population	Minority Population	Percent Minority	Low-Income Population	Percent Low-Income
1,081,726	403,736	37%	378,604	35%

Set threshold with demographic data

## Route Ridership

Day	Discontinued Segment- Ridership			Minority	Percent Minority	Low-Income	Percent Low-Income
	Ons	Offs	Total				
Weekday	81	80	161	89	55%	19	12%
Saturday	45	38	83	46	55%	10	12%
Sunday	41	32	73	40	55%	8	12%

Analysis with ridership data

## Demographic Impacts

Route #	Change type	Day	Total Population	Minority Population	Percent Minority	Minority Threshold	Low-income Population	Percent Low-Income	Low-Income Threshold
22	Segments discontinued	Weekday	5,250	2,783	53%	37%	714	14%	35%
22	Segments discontinued	Saturday	5,250	2,783	53%	37%	714	14%	35%
22	Segments discontinued	Sunday	5,250	2,783	53%	37%	714	14%	35%

Analysis with demographic data/GIS



# Example A – Service Change Equity Analysis Summary

- Ridership Analysis: Affects a higher level (55%) of minority riders, compared to minority population of service area (37 %). Affects a lower level of low-income riders (11%) compared to the low-income population of service area (35%)
- Demographic/GIS Analysis: Minority and low-income residents in the corridor reflect the ridership impacted: higher proportion of minority (53%) and lower proportion of low-income (14%) than the service area.



# Alternative Services Available

- ✓ What alternative services are available for people impacted by the service change?
- ✓ How would the use of alternatives affect riders' travel times and costs?
  - ✓ Example: Other lines or services, potentially involving transfers and/or other modes, that connect affected riders with destinations they typically access.
  - ✓ Can test alternatives using a trip planner



# Mitigate, Minimize, and Offset Disparate Impacts

- ✓ Alignment or frequency changes to nearby lines or services to offer more convenience to affected areas
- ✓ Expansion of demand-response service in affected areas
- ✓ Guaranteed ride home program
- ✓ Other budgetary actions to be taken to limit impacts to riders, i.e. internal cost-containment strategies



# Quiz

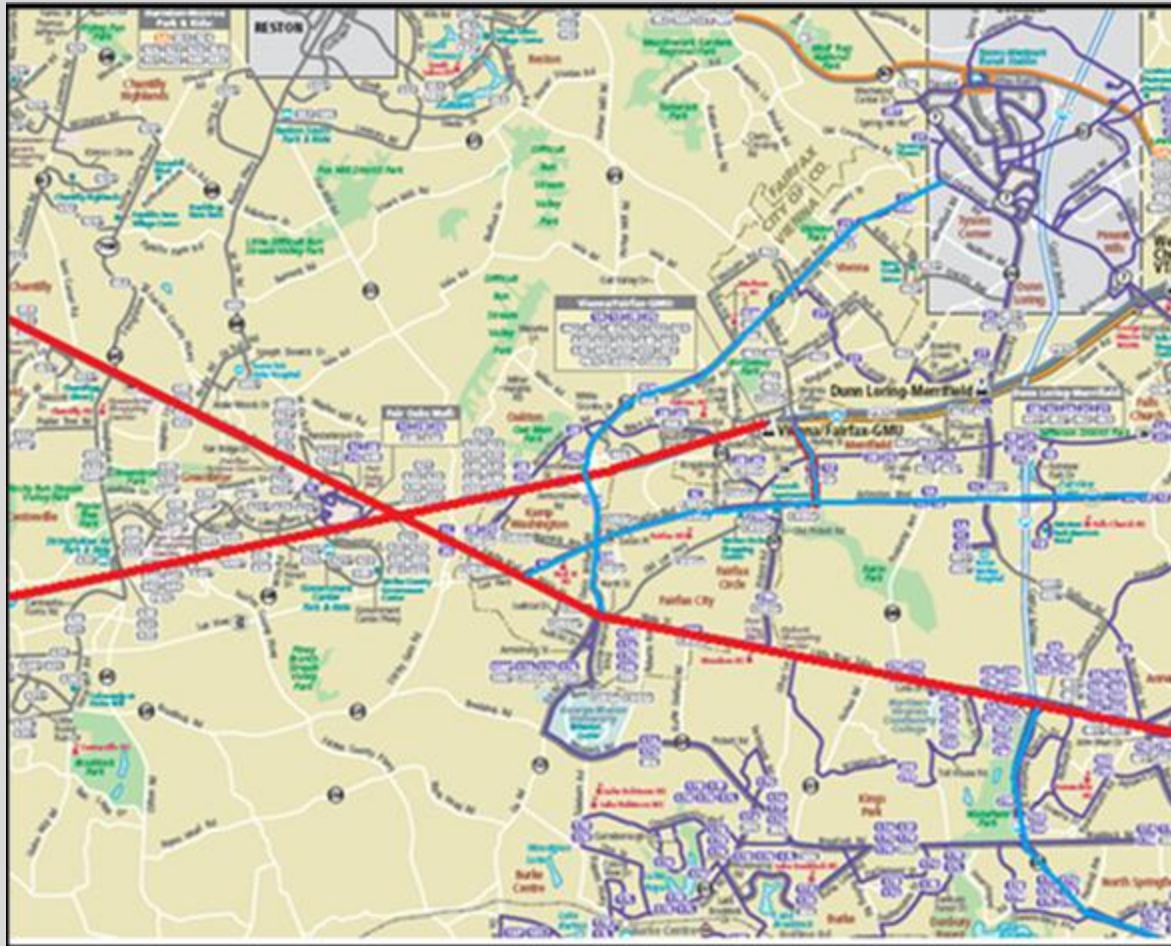
If an agency operates multiple modes but proposed service changes to bus routes only, how should they analyze the service change?


- a) At the modal level based on proportions of low-income and minority ridership for each mode.
- b) Only analyze the impacts along the bus routes.
- c) This is an automatic disparate impact because only low-income people ride the bus.






# Example B: Fare Change



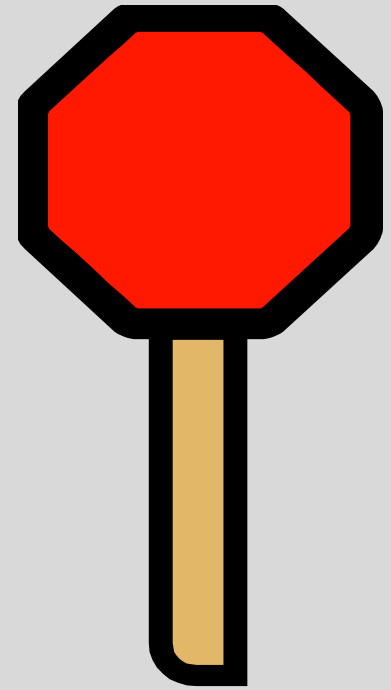
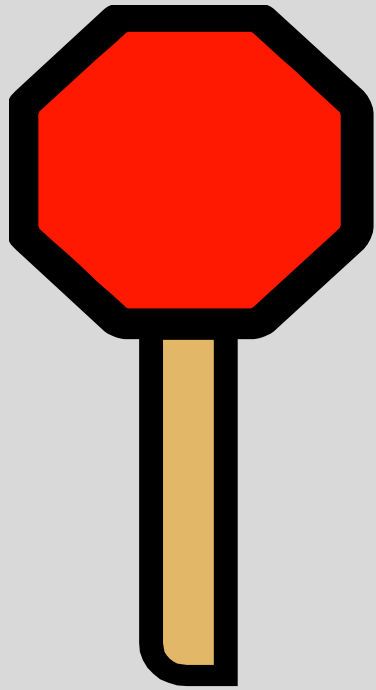
 **Express Bus**  
**50 cents increase**

 **Local Bus -**  
**25 cents increase**

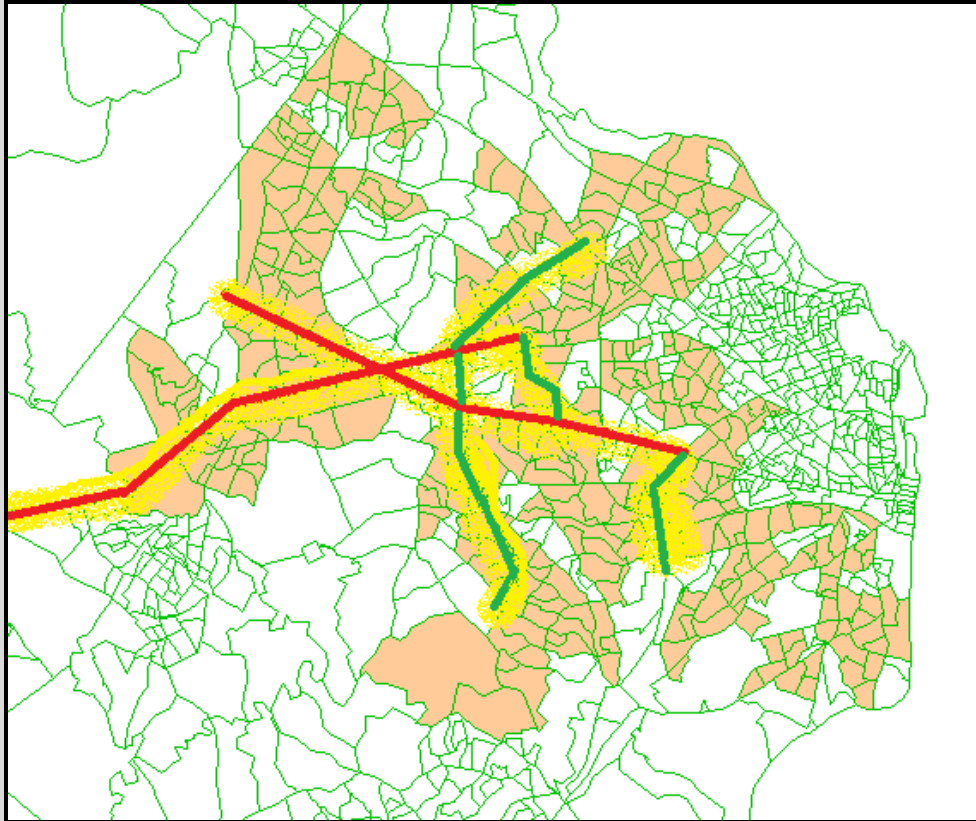


**No such thing  
as “major” fare  
change**

**Analysis  
is required for  
ALL fare changes**



# GIS Analysis - Overlay Fare Change Routes on Low-Income Tracts



¼ mile buffer is used to identify the affected population



# Calculate Effects of Fare Change on Population

Proportion of Minority and Low-Income Population

Route #	Total Population	Minority Population	Percent Minority	Minority Threshold	Low-income Population	Percent Low-Income	Low-Income Threshold
BE 10	12,690	7,250	57%	37%	2,820	22%	35%
BE 18							
LB 21							
LB 11							
LB 25							

Analysis with demographic data/GIS

- Minority populations are disproportionately impacted
  - The minority population within ¼ mile is 57%, compared to 37% of the regional population
- Low-income populations are not disproportionately impacted
  - The low-income population within ¼ mile is 22%, compared to a 35% of the regional population



# Calculate Effects of Fare Change on Riders

Proportion of Minority and Low-Income Riders

Route #	Ridership Information				Fare Information			Average Fare Change			
	Minority ridership	Non-minority ridership	Low-income ridership	Non low-income ridership	Current fare	Proposed fare	Fare change	Minority ridership	Non-minority ridership	Low-income ridership	Non-low-income ridership
BE 10	7	490	17	480	\$2.00	\$2.50	\$0.50	\$3.50	\$245.00	\$8.50	\$240.00
BE 18	17	1006	7	1016	\$2.00	\$2.50	\$0.50	\$8.50	\$503.00	\$3.50	\$508.00
LB 21	46	857	37	866	\$1.25	\$1.50	\$0.25	\$11.50	\$214.25	\$9.25	\$216.50
LB 11	57	888	30	915	\$1.25	\$1.50	\$0.25	\$14.25	\$222.00	\$7.50	\$228.75
LB 25	51	377	29	399	\$1.25	\$1.50	\$0.25	\$12.75	\$94.25	\$7.25	\$99.75
<b>Total</b>	178	3618	121	3676	<b>Average</b>			<b>\$0.28</b>	<b>\$0.35</b>	<b>\$0.30</b>	<b>\$0.35</b>

- Minority riders and low-income riders will have a lower average fare increase than non-minority and non-low-income households.
- Why?
  - A higher proportion of non-low-income and non-minority use the “express” routes (50¢).
  - A higher proportion of minority and low-income riders use the local routes which have a lower fare increase (25¢)



# Alternative available

- ✓ Alternative fare media
- ✓ Timing of fare increase
- ✓ Increase fares on some media
- ✓ Studies indicate passengers desire smaller & incremental fare increases; rather than a **LARGE ONE** all at once



# Mitigate, Minimize & Offset Disparate Impacts!

- ✓ Partnerships
- ✓ Subsidy for bulk pass purchases
- ✓ Ticket purchases by CBOs or social service agencies
- ✓ Marketing!



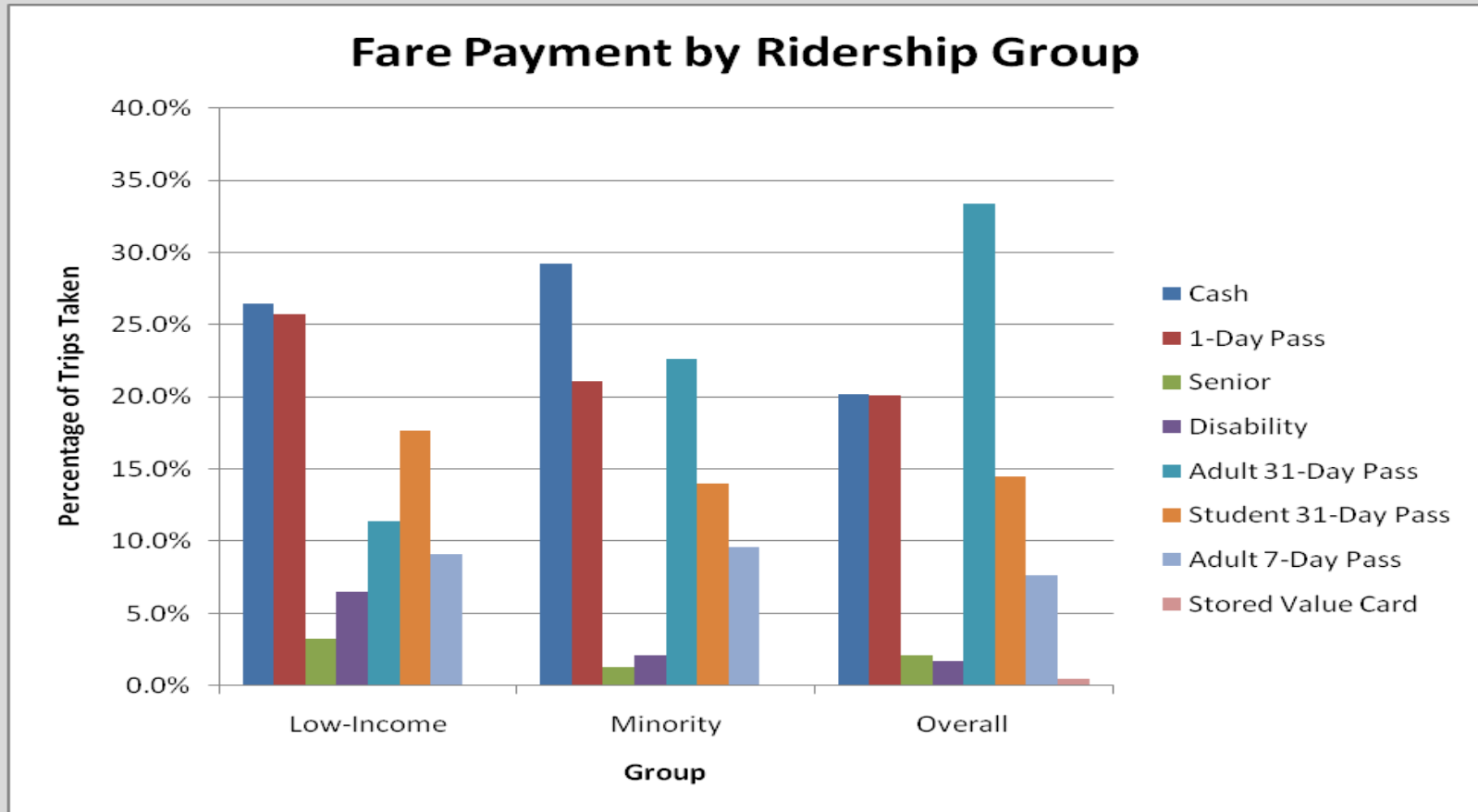
# Special Considerations: Fare Elasticity & Ridership Weighting

- Determine Fare Elasticity
- Fare elasticity is used to measure the response of transit patronage to fare changes
  - For example, 10% higher fare = 3~7% decrease in riders
- Proposed fare increases should be weighted against low-income and minority ridership
  - It differs between large and small cities
  - Less responsive to fare change during peak travel periods
  - Initial base fare levels have influence on transit system fare elasticity





# Recommendation: Use Graphics



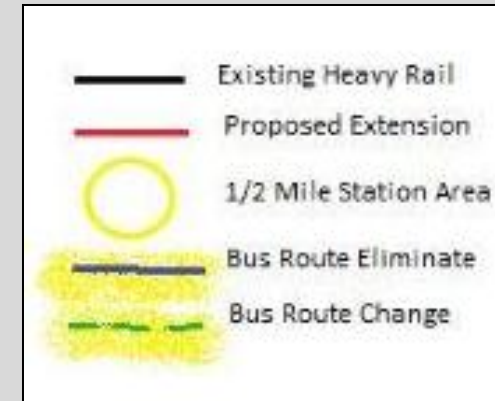
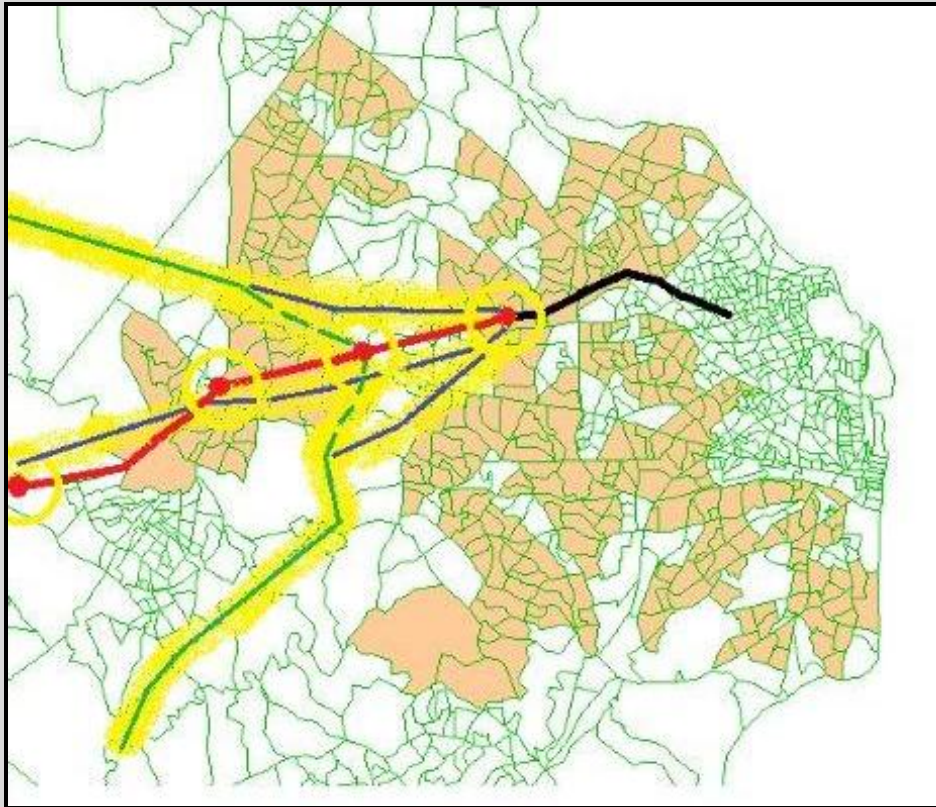
# Quiz

If a transit agency raises fares such that the percent increase is the *same for all fares*, are the increased fares *equitable*?

- a) Yes
- b) No
- c) It depends
- d) Yes, but only if transfers are free



# Example C: Major Capital Investment Project



- 1/2 mile station buffers areas
- 1/4 mile bus route buffers
- Low-income tracts in orange

# Example C: Identify Population Impacted

- Identify the minority and low-income population in the communities within  $\frac{1}{2}$  mile of the project station areas
- Identify minority and low-income population in the  $\frac{1}{4}$  mile buffer area around the bus routes changed or eliminated
- Compare the minority and low-income populations impacted by the rail and bus service changes to the service area average
- Identify whether there are disproportionate impacts



# Example C: Identify Ridership Impacted

- Identify minority and low-income riders on the impacted transit routes
- Compare the minority and low-income riders impacted to the service area average
- Consider whether the new service will result in a change in cost, travel time, span of service, or require additional transfers for existing bus riders
- Consider whether minority and low-income riders benefit from the new service or have reduced level of transit service



# Conclusions

- What are your conclusions as to the impact of proposed service changes on low-income and minority populations?
- If disparate impact:
  - Meets a substantial need that is in the public interest
  - Alternative strategies have more severe adverse effects than preferred alternative
  - 1 & 2 not a pretext for discrimination
  - Considered alternatives & mitigation



# Summary Points

- Evaluate changes during *planning*
- Determine if discriminatory impact
- Compare “apples-to-apples”
- Explain methodology
- Use graphics
- Describe actions to *mitigate*

**Remember! Always compare**



**Apples to Apples,  
Oranges to Oranges**



# Questions

- Do you understand what the requirements are?
- Do you have an idea of how the analysis is done?





# Thank You for Participating!

## Contacts

Leah Flax

[Leah.Flax@dot.gov](mailto:Leah.Flax@dot.gov)

212-668-2326

Amber Ontiveros

[Amber.Ontiveros@dot.gov](mailto:Amber.Ontiveros@dot.gov)

202-366-5130

## Resources

The Circular

[http://www.fta.dot.gov/documents/Title\\_VI\\_Circular\\_4702.1A.pdf](http://www.fta.dot.gov/documents/Title_VI_Circular_4702.1A.pdf)

Administrator Rogoff's Policy Letter

[http://www.fta.dot.gov/printer\\_friendly/12910\\_12480.html](http://www.fta.dot.gov/printer_friendly/12910_12480.html)

[Title VI Service and Fare Equity Analysis Questionnaire](#)

