

# Trams, Trails and Transit

## Active Transportation, Resilient Infrastructure

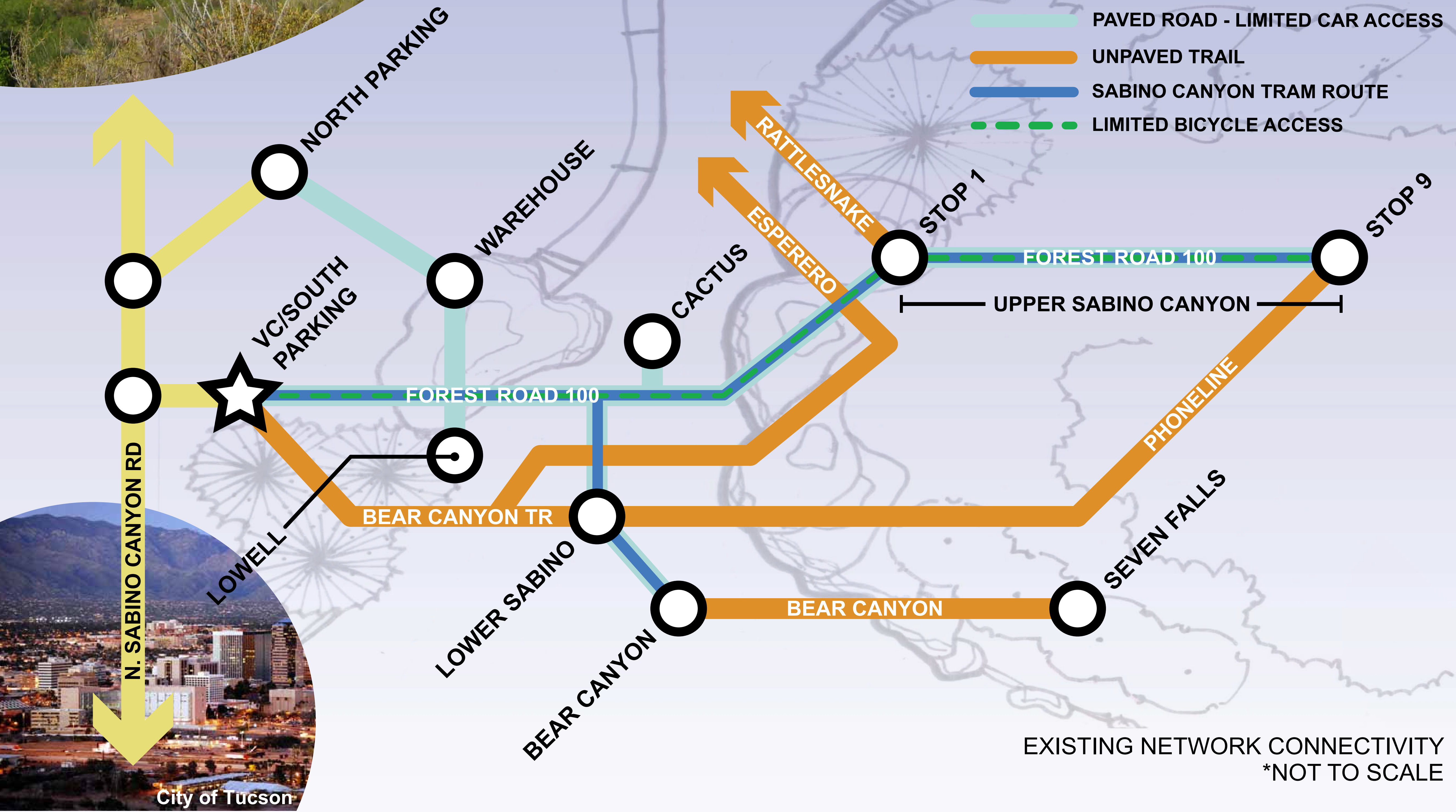
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Unit: Sabino Canyon - Coronado NF

**What is the Transportation Scholars Program?**  
The Public Lands and National Park Foundations' Transportation Scholars programs provide parks and public lands with transportation professionals for six to 12 months who assist in transportation planning and implementation to help parks and public lands reduce traffic, congestion and pollution while improving visitor experiences. These programs are designed to place individuals with substantial knowledge and expertise in transportation planning and related areas. *See footer for a list of sponsors*

### SABINO CANYON - TRIP 2.0



[T1]+[T2]+[T3]=re•sil•ience



Adj : [ ri 'zil 'yuhns ] 1) Able to withstand or recover quickly from difficult conditions. 2) The long term capacity of a system to return to its original state after disturbance



[T1]

### Trams

Since Forest Road 100 was closed to public vehicular access in 1978, the Forest Service has contracted with a private concessionaire to provide transit access through the canyon via a shuttle or 'tram' system. The rolling stock has not been updated since the original procurement in 1978 and there are concerns of visual, audio and air pollution originating from the diesel powered units. The current special use permit is set to expire in December 2013 and as such the Forest Service is developing a new concept of operations which reflects current best practices of transit systems in federal lands. Before the existing permit expires, the Forest Service intends to select a concessionaire through a competitive process so this important service can continue to serve the public.

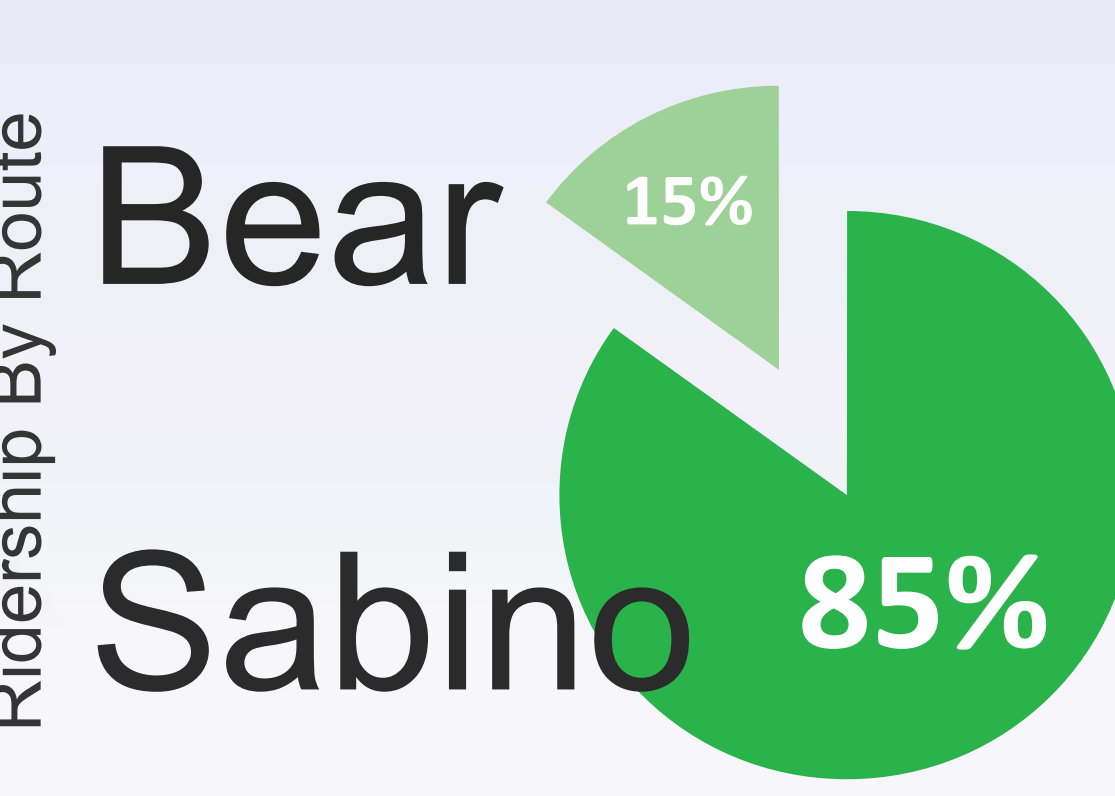
#### OBJECTIVES

- Transport visitors safely and efficiently from the Visitors Center through Sabino Canyon
- Provide opportunities to interpret the cultural and ecological highlights of Sabino Canyon
- Provide opportunities to educate the public about alternative transportation and sustainability
- Develop a system which features alternative propulsion technology as defined by Federal Lands Highway Program § 3021 (ATPPL)

16% of total yearly visitors use the tram  
80% of tram riders see the service as a ride, not as transportation  
65% of visitors said transit in Sabino Canyon was very important

Decibel level of diesel engine  
Decibel level of PA system  
Average age of current rolling stock

Tons of CO2e Emitted/Yr with Current System (Diesel)



Wells to Wheels  
Life Cycle Mitigation<sup>1</sup>

Hybrid/Electric (Gasoline)	16%
Biomass Flex Fuel Vehicles	53%
Hydrogen Fuel Cell Vehicles	45%
Renewable Diesel (Soy/Algae)	60%
Electric Vehicles (Coal)	35%

<sup>1</sup>Based on Argonne Labs GREET model (LCA of GHG)



[T2]

### Trails

Currently, Forest Road 100 is the only way for the public to access Sabino Canyon. This ribbon of asphalt is severely constrained due to physical design, usage patterns and natural phenomena. Originally constructed during the Civilian Conservation Corps era, the road is very steep and narrow with a series of hairpin turns and low water crossings. The different user groups that frequent Sabino Canyon must all share the same right of way, which can frequently cause conflicts. Additionally, rock slides, debris flows and floods can wash out segments of the road costing millions in repairs, stranding visitors and causing the canyon to be closed to the public for long periods of time. The Forest Service intends to develop a secondary pedestrian trail route through the canyon so as to resolve these issues.

- Provide an all weather egress out of the canyon so visitors can self extract during severe weather events
- Enhance visitor experience and decrease congestion by separating pedestrian traffic from motorized and bicycle traffic
- Guarantee public access to Sabino Canyon into the future even if FR 100 is closed due to maintenance, repairs or lack of funding for reconstruction



[T3]

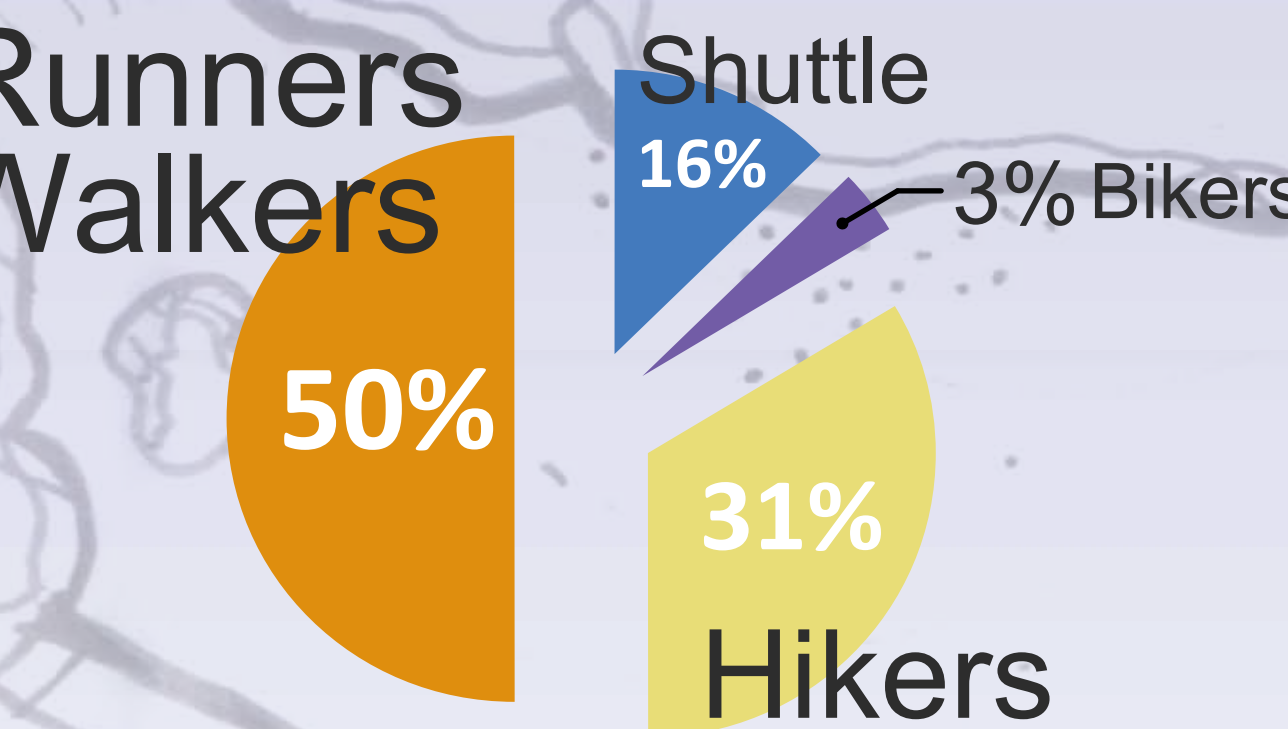
### Transit

The Coronado National Forest is considered an 'urban forest' because of its proximity to a major metropolitan area. As such, the Forest is subject to pressures which are different than units which are located more remotely. Because of its appeal as a fitness destination, the unit receives a significant amount of daily local traffic from the surrounding neighborhoods. During high season (January through April) the parking lot is frequently at capacity with many visitors parking illegally on N. Sabino Canyon Road. This causes safety, queuing and congestion concerns for the Forest, Pima County and the surrounding neighborhoods. Additionally, transit dependent communities are isolated from this important cultural and ecological resource. The Forest Service intends to link Sabino Canyon with the transit network of the greater Tucson metro area.

- Decrease vehicular congestion in the parking lot and in the public roads surrounding the recreation area
- Provide opportunities for transit dependent communities to access parks and open space
- Mitigate carbon emissions through transit options
- Build visitation to increase awareness of environmental stewardship, recreation opportunities, employment opportunities and healthy / active living

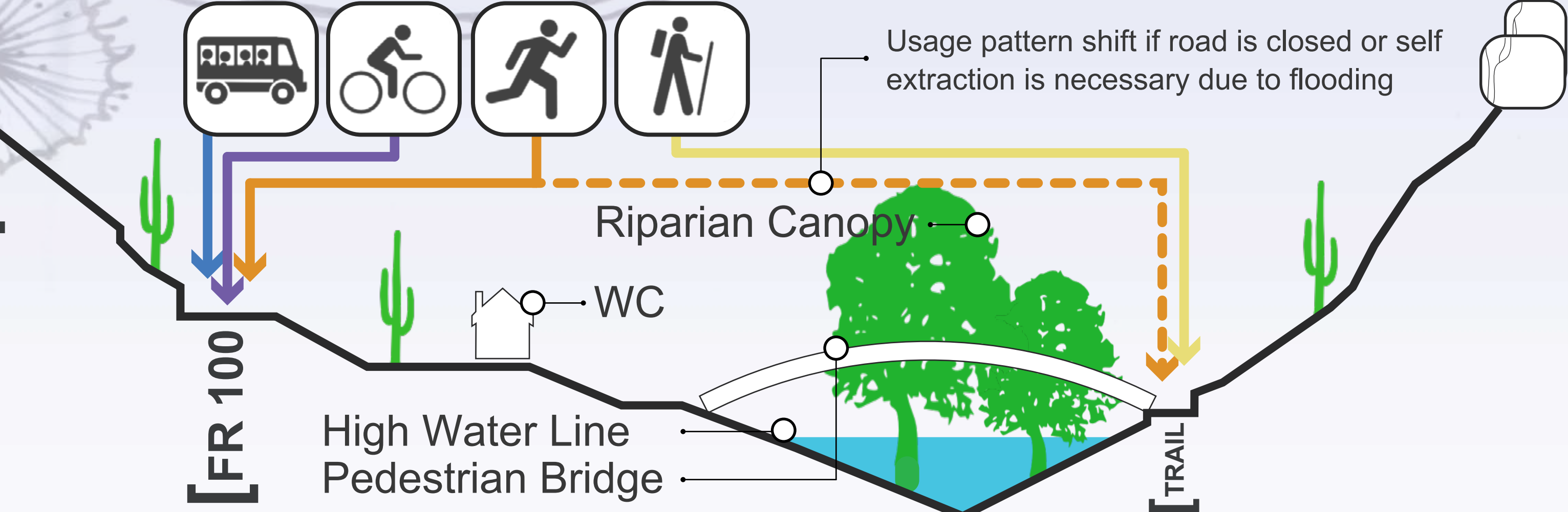
Forest Road 100	2012 Dollars	
\$	30,000	Every year to repair shoulders, asphalt, stones and ditch clearing
\$	350,000	Every seven years to chip seal and re-stripe
\$	2,000,000	Every fifty years to grind pavement, asphalt, shaping and compacting
\$	5,950,000	50 Year Life Cycle cost to keep FR 100 open

User Groups



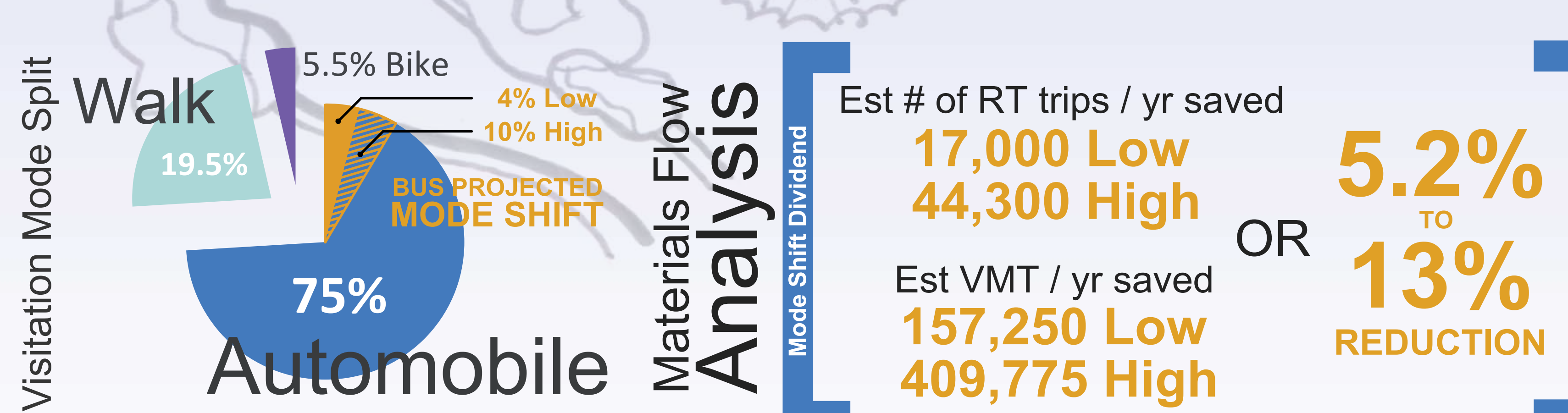
Public Safety	
2	Drowning Fatalities <sup>2</sup>
64	Aerial Rescues <sup>2</sup>
\$12,000	Cost / Person for Airlift

Canyon Section Concept



324,600 Avg. yearly number of RT vehicle trips to Sabino Canyon  
9.25mi Avg. distance RT traveled to reach Sabino by Tucson residents  
~3M Est. vehicle miles generated / Yr by automobiles to Sabino

# of one way transit trips generated by peer systems per 1 visitor<sup>3</sup> Low End 0.08 High End 0.21  
Distance to nearest bus stop (on 105x route) 1.8mi



Est # of RT trips / yr saved 17,000 Low 44,300 High  
Est VMT / yr saved 157,250 Low 409,775 High  
5.2% TO 13% REDUCTION

<sup>3</sup> Correlated to gross visitation Low - Denali NP, High Acadia NP

