Tysons Corner Transportation/ Urban Design Study

Transportation Analysis

presented to

Tysons Corner Study Land Use Task Force

presented by

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Transportation leadership you can trust.

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Presentation Overview

- *Prototypes and Networks*
- Measures of Effectiveness
- Summary and Conclusions

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Prototypes and Networks
Two Prototypes – Summary

	Total Floor Area (sq ft)	Jobs	Households	Jobs/ Household
Existing (2005)	44 m	106,900	8,100	13.2
Base Case	74 m	161,500	16,300	9.9
Prototype A	96 m	159,000	36,300	4.4
Prototype B	127 m	202,800	50,000	4.1

Prototype A

Prototype B

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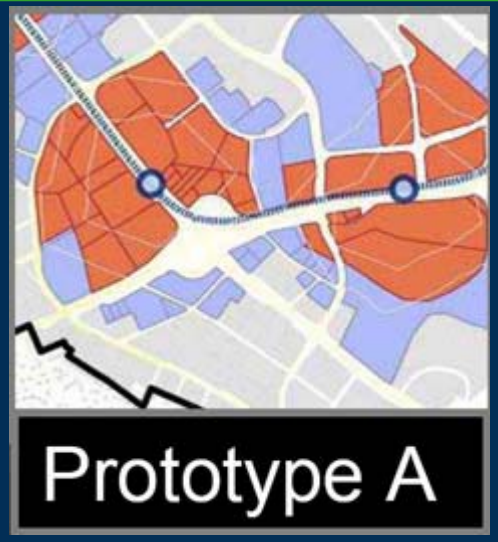
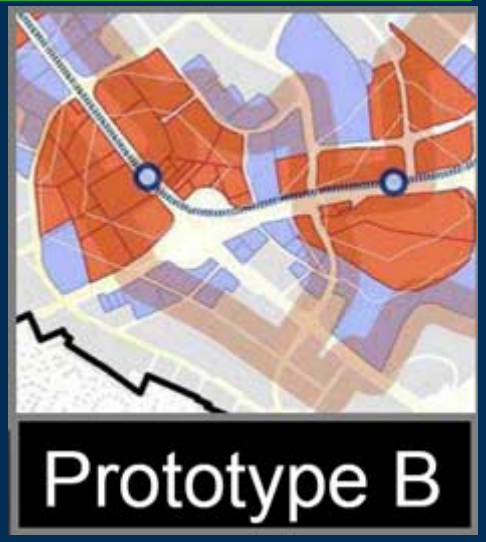
Prototypes and Networks
Two Prototypes – Summary

	Base Case	Prototype A	Prototype B
Four TOD Areas	66%	73%	70%
Non-TOD Areas	34%	27%	30%

In the Prototypes, TOD areas capture 70% or more of the total development in Tysons Corner.





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Prototypes and Networks
Two Networks – Summary

Element	Network 1	Network 2
Metrorail extension through Tysons Corner	✓	✓
Beltway HOT Lane improvements	✓	✓
Enhanced connectivity; grid of streets	✓	✓
Enhanced TDM and parking management	✓	✓
Grade separations at key intersections and access management on Route 7 and 123	✓	
Additional ramps to Beltway and Toll Road	✓	
Transit circulators (in mixed traffic)	✓	
Transit circulators (dedicated right-of-way)		✓

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- ***Measures of Effectiveness***
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Measures of Effectiveness

- Vehicle miles traveled by LOS and facility type
- Average weekday traffic at selected locations
- Change in travel times within, to, and from Tysons Corner
- Travel distribution
- Mode share summary
- VA 7 Traffic
- Cost estimates

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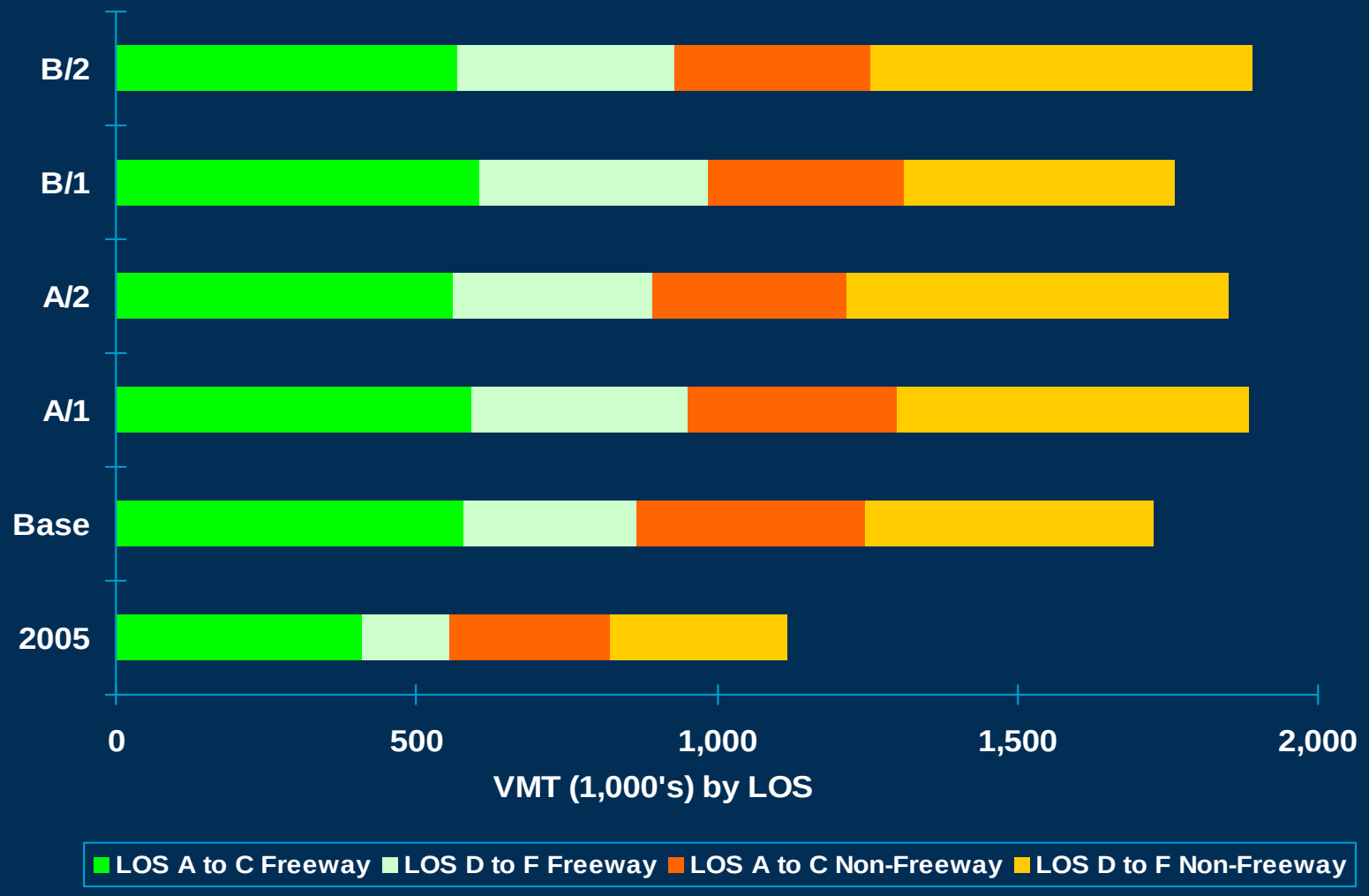
Daily Vehicle Miles Traveled
by Alternative and Facility Type



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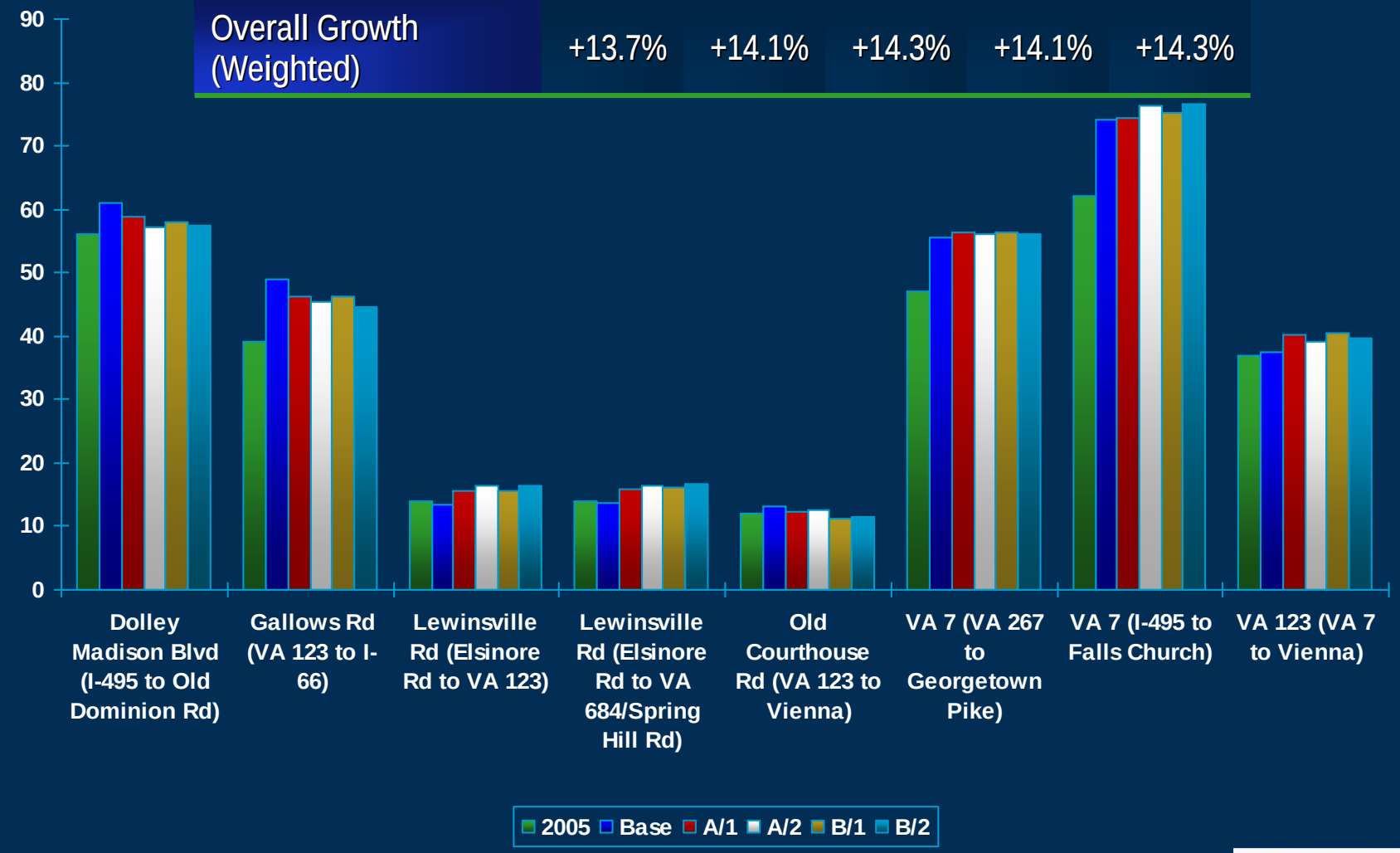
Average Weekday Daily Traffic
Key Locations

	Base	A/1	A/2	B/1	B/2
Overall Growth (Weighted)	+13.7%	+14.1%	+14.3%	+14.1%	+14.3%



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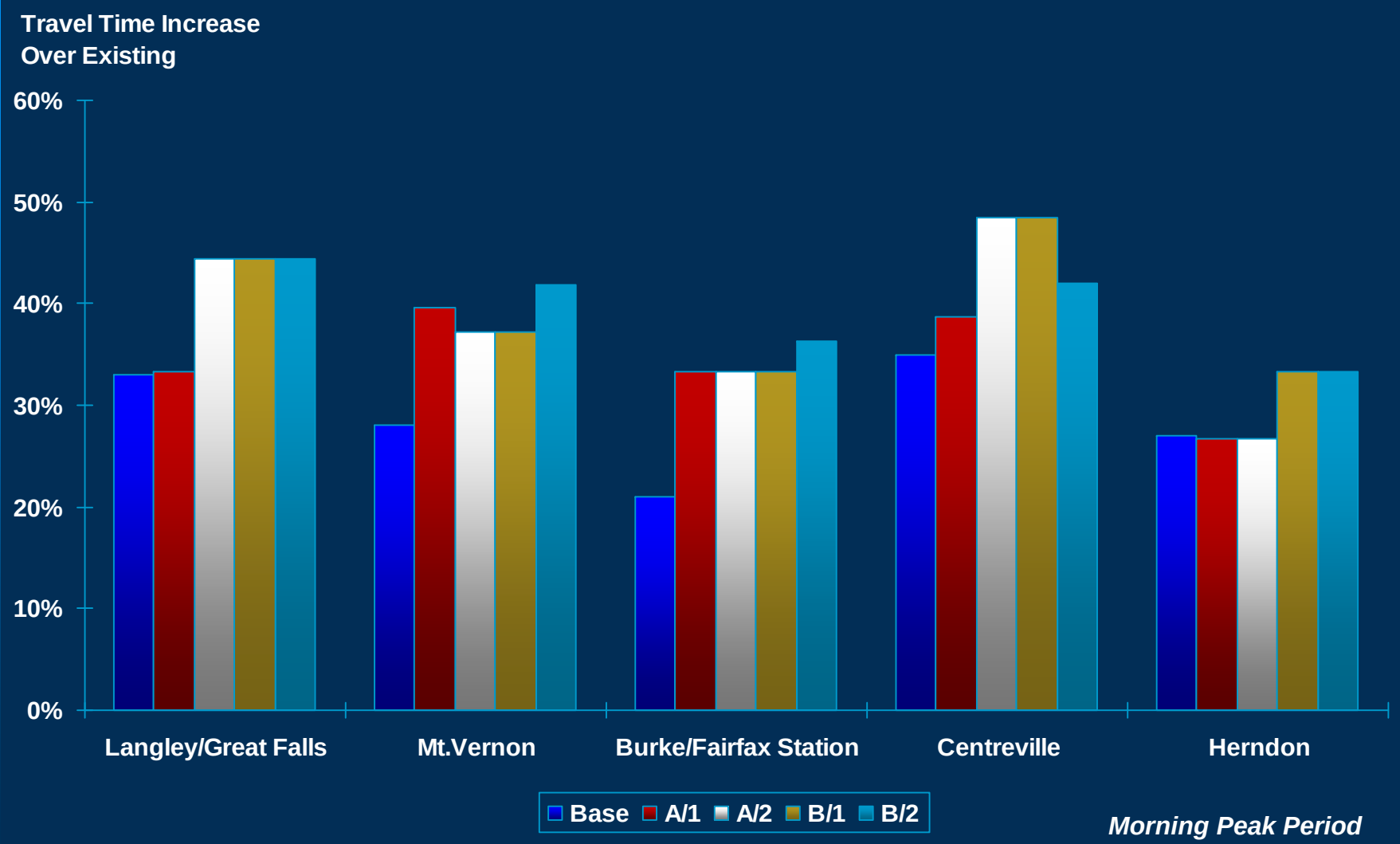
Accessibility
To Tysons Corner from Selected Residential Areas



Morning Peak Period

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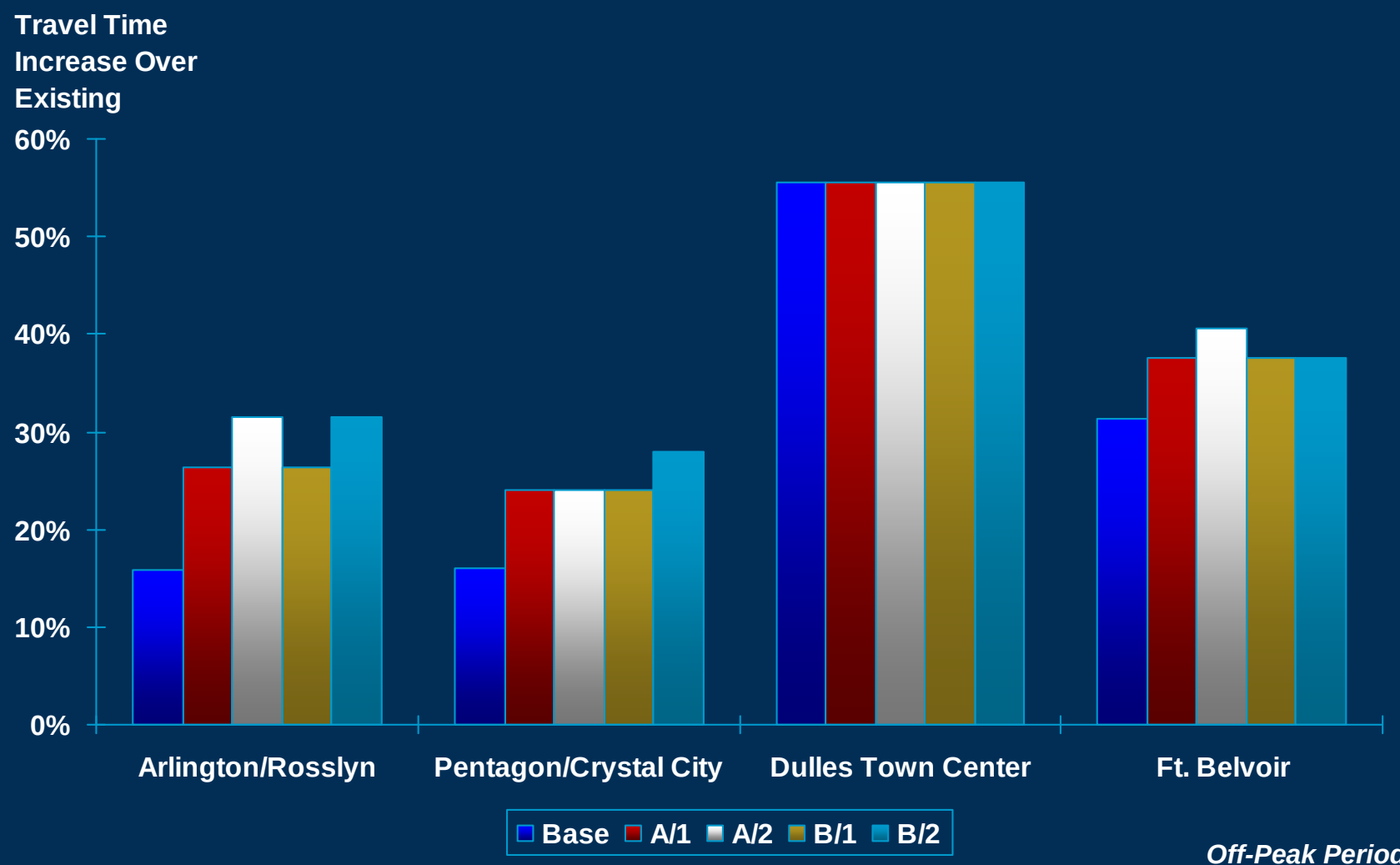
Accessibility
From Tysons Corner to Key Business Activity Centers



Off-Peak Period

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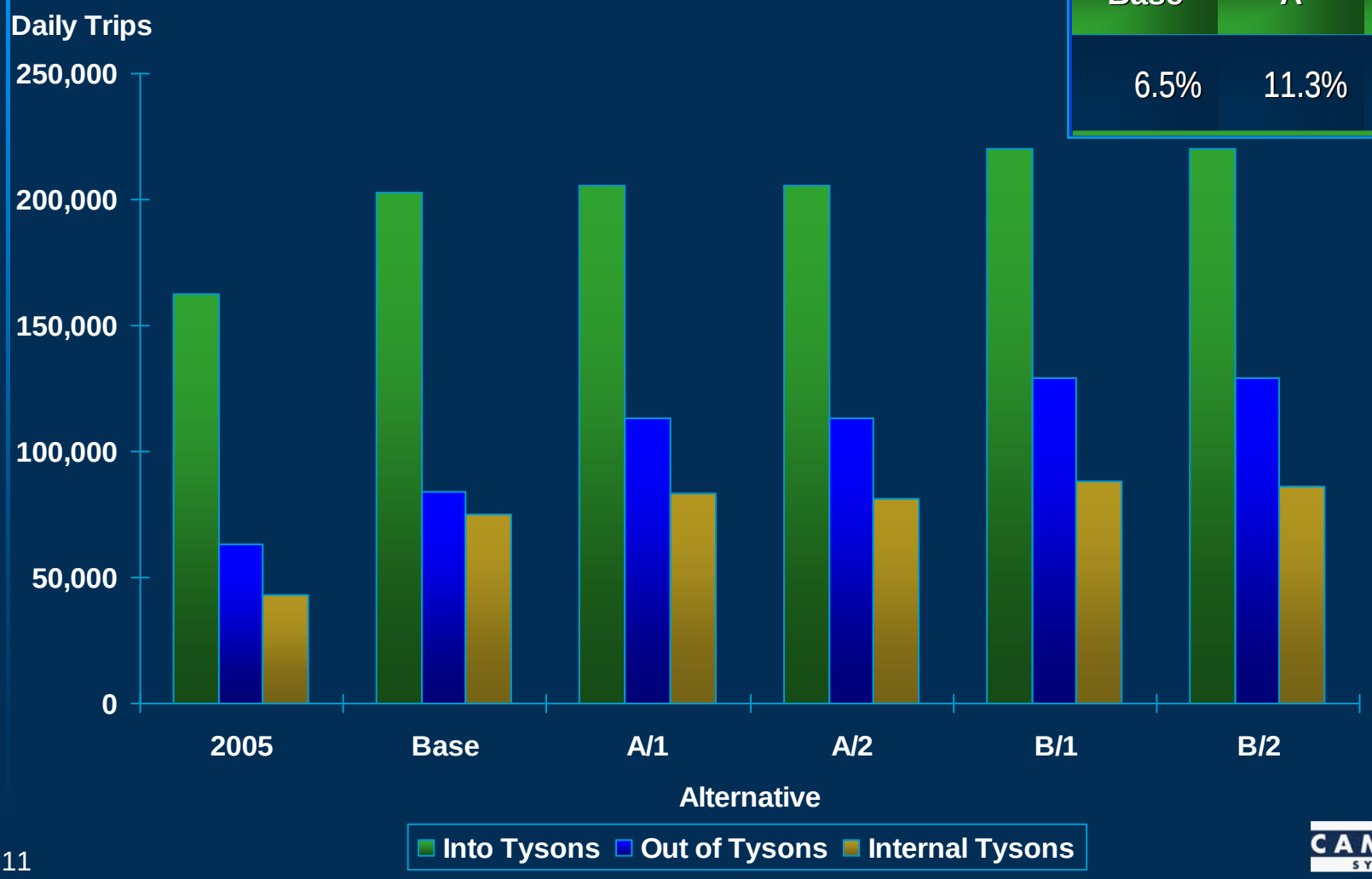
Tysons Corner Trip-Making

Motorized Trips (All Purposes)



Walk/Bike Commuters		
Base	A	B
6.5%	11.3%	17.5%

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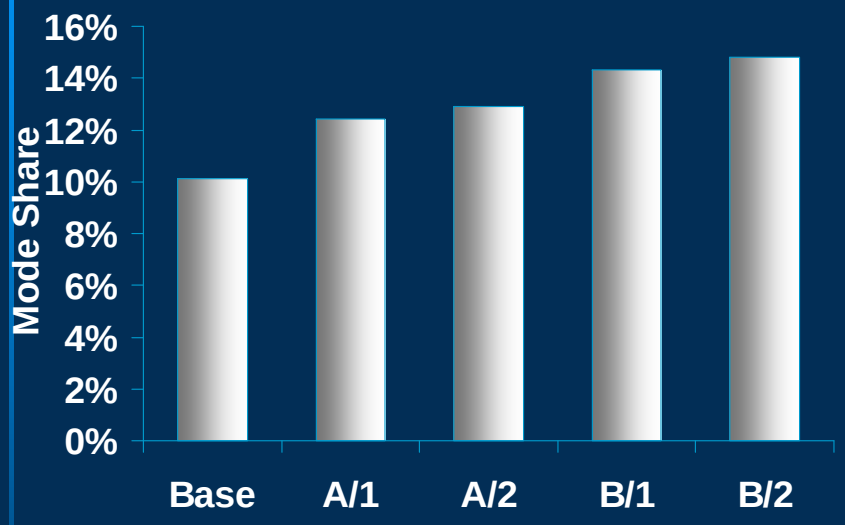
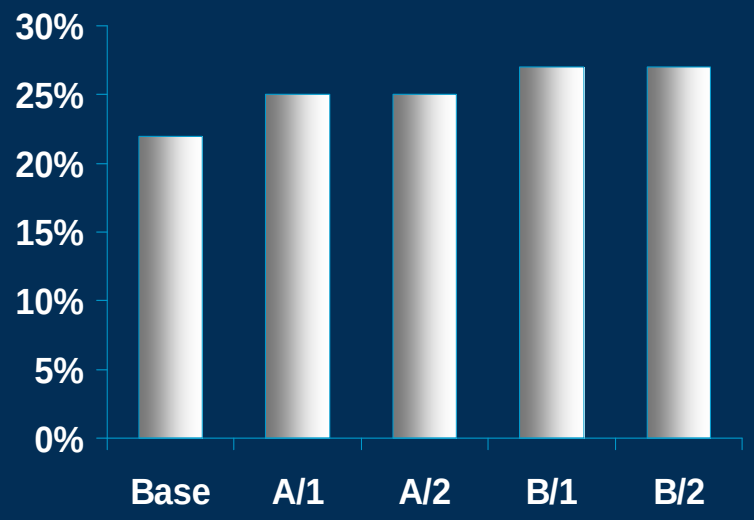
Transit Trips

All Purposes



Work Trip Purpose



Transit mode share higher in Prototype B versus Prototype A and in Network 2 versus Network 1

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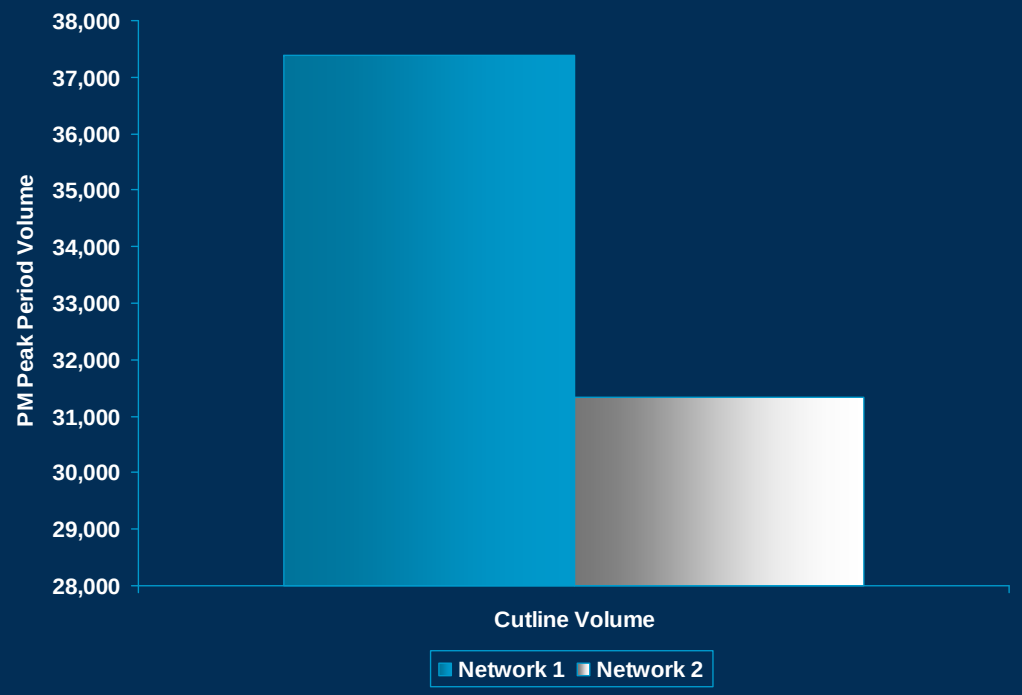
VA 7 Traffic
Sketch Planning Evaluation



More traffic can be "processed" on VA 7 with the proposed interchange improvements present in Network 1

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Transportation Costs

Transportation Costs with Streetcar

	Network 1	Network 2
Highway Cost		
Freeway ramps, overpasses	$500	$130
Grid of streets	$70	$80
Urban Interchanges on VA 7 and VA 123	$140	$0
Total Highway Cost	$710	$210
Circulator Cost		
Vehicles	$15	$110
Track	$0	$440
Total Circulator Cost	$15	$550
Total Capital Cost	$725	$760
Operating Cost	$10	$20

Planning Level Estimates

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Transportation Costs

Transportation Costs with Bus

	Network 1	Network 2
Highway Cost		
Freeway ramps, overpasses	$500	$130
Grid of streets	$70	$80
Urban Interchanges on VA 7 and VA 123	$140	$0
Total Highway Cost	$710	$210
Circulator Cost		
Vehicles	$15	$13
Total Circulator Cost	$15	$13
Total Capital Cost	$725	$223
Operating Cost	$10	$10

Planning Level Estimates

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Conclusions

- Generally some increase in congestion when prototypes are compared to the Base. The level of this increase differs depending on the measure used. For travel within Tysons, the prototypes perform better.
- The residential component captures a substantial amount of trips, reducing trips from outside to Tysons.
- The prototypes show a higher level of transit use than the Base.
- Network 1 draws more trips to Tysons resulting in some increased congestion in Tysons.
- Network 2 will cost less than Network 1 with a bus on own right-of-way option.
- Weighted average volume change of approximately 14% is estimated for roads surrounding Tysons.

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