

Agriculture Shifts and Transportation Impacts - A District One Report

Collier RLSA Workshop
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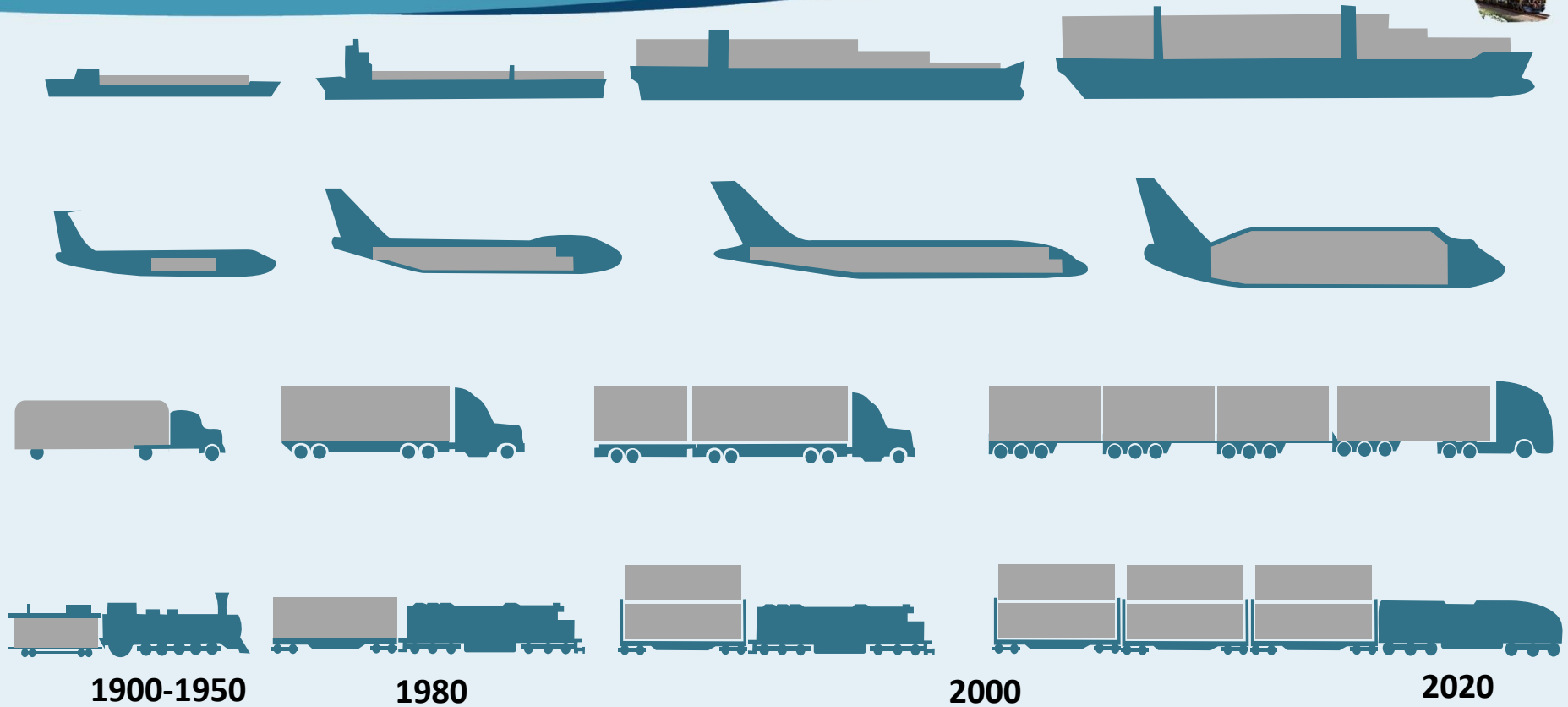


Agenda



- The Changing Face of Freight Vehicles
- Freight Mobility and Agribusiness
- **Report Overview** - *Agricultural Growth and Development in District One and the Impacts to Transportation and Freight Logistics Report Overview*

Changing Face of Freight Vehicles



- Transport influences location of manufacturing plants and distribution facilities
 - Influences very pronounced for firms producing or marketing globally
- Influences are dynamic – as economic activity locations shift, the pattern of transport demand also shifts and vice versa

Freight Mobility and Agribusiness

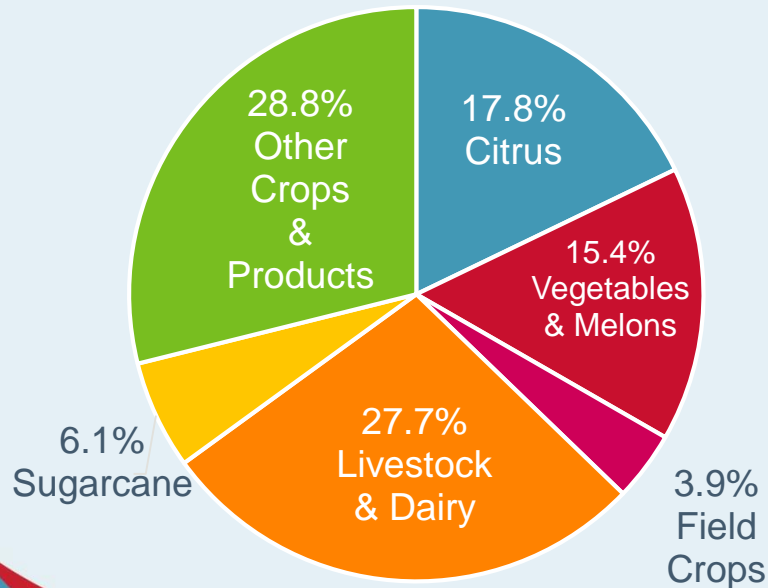


Florida agriculture and agribusiness contribute more than \$120 billion in annual economic impact and employs more than 2 million people.

Fresh From Florida, 2018, Vol 4

2014

Farm Cash Receipts = \$8.46 Billion



Source:
FDACS

Transportation-Specific Opportunities for Support:

- Freight infrastructure projects
 - Bridge improvements, intersection / turning radii improvements
- Engagement w/industry for situational and operational awareness of major issues and concerns
- Opportunities for planning and policy engagement
- Use feedback to make positive changes
- Support to the State Agriculture Response Team (SART)

“There is nothing that we produce in this country in agriculture and forest products that cannot be sourced somewhere else in the world. If we cannot deliver affordably and dependably, our customers will go elsewhere.”

Agriculture Transportation Coalition

Why did we look into this issue?

Ag – Transport



Agricultural Growth and Development in District One and the Impacts to Transportation and Freight Logistics
FDOT District One
2017

FDOT DISTRICT 1 **FLP**



This report:

- Aims at identifying where encroachment will likely occur
- Looks at where shift will occur
- Looks at how shift will impact the transportation network
- Findings focus on:
 - Regional impacts
 - Impact on key corridors and state roads
 - Impact on local roads
 - Identification of areas for future hubs for freight activity
 - How this information may be useful in other transportation planning efforts.

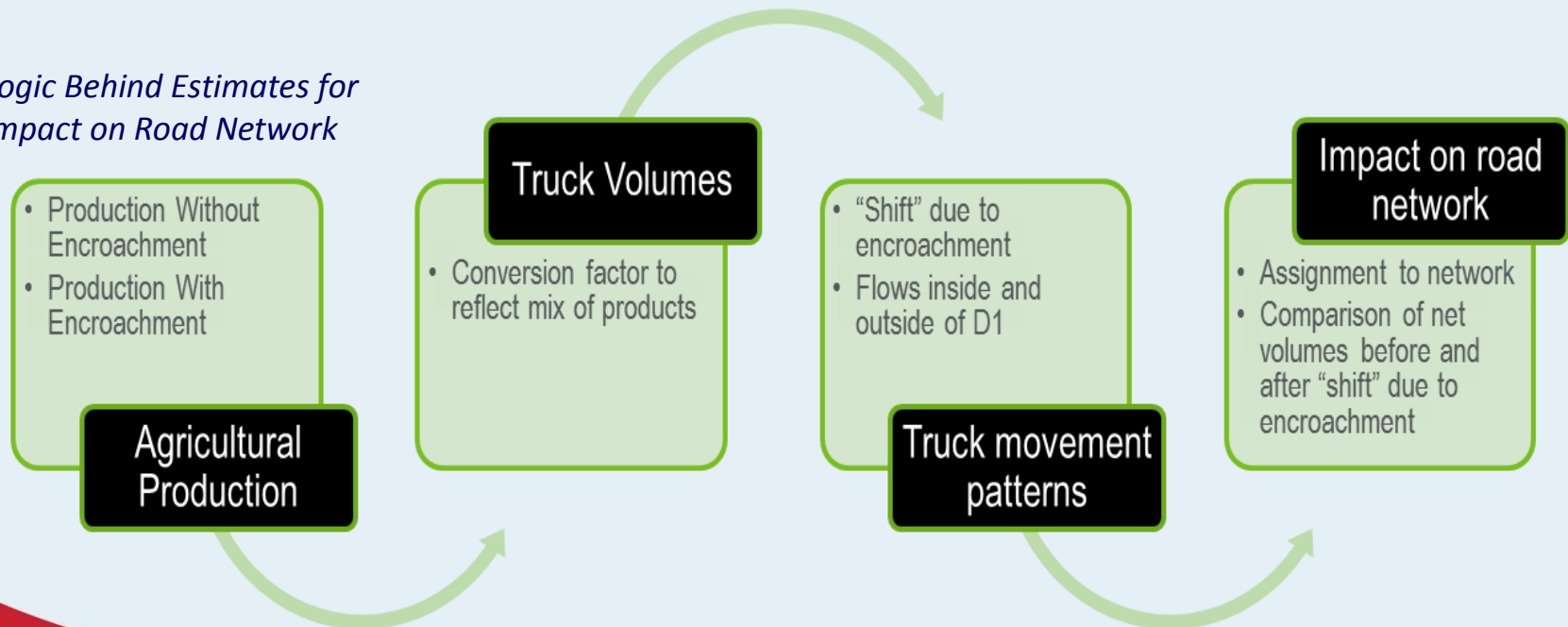


Methodology: Quantifying Encroachment Impacts



- Population growth leads to more encroachment on agricultural land
- Agriculture relocation depends on crop, land available, and pattern of encroachment
- Impact on the network is analyzed with and without encroachment variables

Logic Behind Estimates for Impact on Road Network



Study Assumptions



- Defines urban footprint using 2010 Census data on population density; used with population forecasts to obtain land area estimates
- Assumes District 1 does not lose production currently available
- Not a 1-for-1 shift of agricultural production acreage
- Urban expansion assumed to only affect lands near urban areas; not all growth affects agriculture
- Qualitative parameter, encroachment factor, used to determine the extent urban expansion affects agricultural land relative to other land usage
- Agricultural lands not being actively farmed can be areas that facilitate urban growth

This report is not a definitive or authoritative document. Data is used for planning purposes only.

Projected Agricultural Production Among Counties



- Citrus operations moving north to south, vegetable operations moving west to east
- Production forecast for District 1 mostly unchanged, impact on individual counties varies greatly

Table 2. Cumulative Net Impacts on Agricultural Production Land Due to Encroachment (in short tons)

County	2012 Production Tonnage*	2017	2020	2025	2030	2035
Charlotte	201,206	0	0	-6,853	-23,322	-37,318
Collier	632,117	796	8,696	16,966	26,673	35,460
DeSoto	853,073	3,291	32,288	62,276	98,783	132,012
Glades	1,050,400	3,392	27,962	52,777	85,138	114,891
Hardee	635,287	1,842	19,081	37,024	58,456	77,907
Hendry	3,264,462	9,296	73,591	138,109	223,783	302,755
Highlands	1,066,140	298	4,716	9,487	14,569	19,093
Lee	196,666	-8,516	-134,876	-196,666	-196,666	-196,666
Manatee	793,212	0	0	-39,441	-114,367	-181,211
Okeechobee	134,827	0	0	0	0	0
Polk	1,418,384	0	0	-46,921	-172,168	-290,355
Sarasota	15,480	-7,946	-15,480	-15,480	-15,480	-15,480

* Represents short tons of agricultural goods produced in 2012 (source: USDA)

Changes to Truck Traffic Across Main Roads/Highways due to Shift in Agricultural Production



- Used data depicting current and future levels of service for road network and AADT, taken from Freight Mobility and Trade Study
- Major SIS corridors such as US 27, SR 70 and SR 80 seem to carry the new traffic
 - Move from US 17 to US 27 as the major north-south route
 - SR 80 along Caloosahatchee River, connects I-75 to US 27, crosses SR 29, parallels SR 78
 - SR 70 from Bradenton through Arcadia and Okeechobee, crosses I-75, US 17, US 27, US 98, and US 441

Table 5. Largest Increases in Heavy Truck Traffic on SIS Corridors from Agricultural Shifts in District One³²

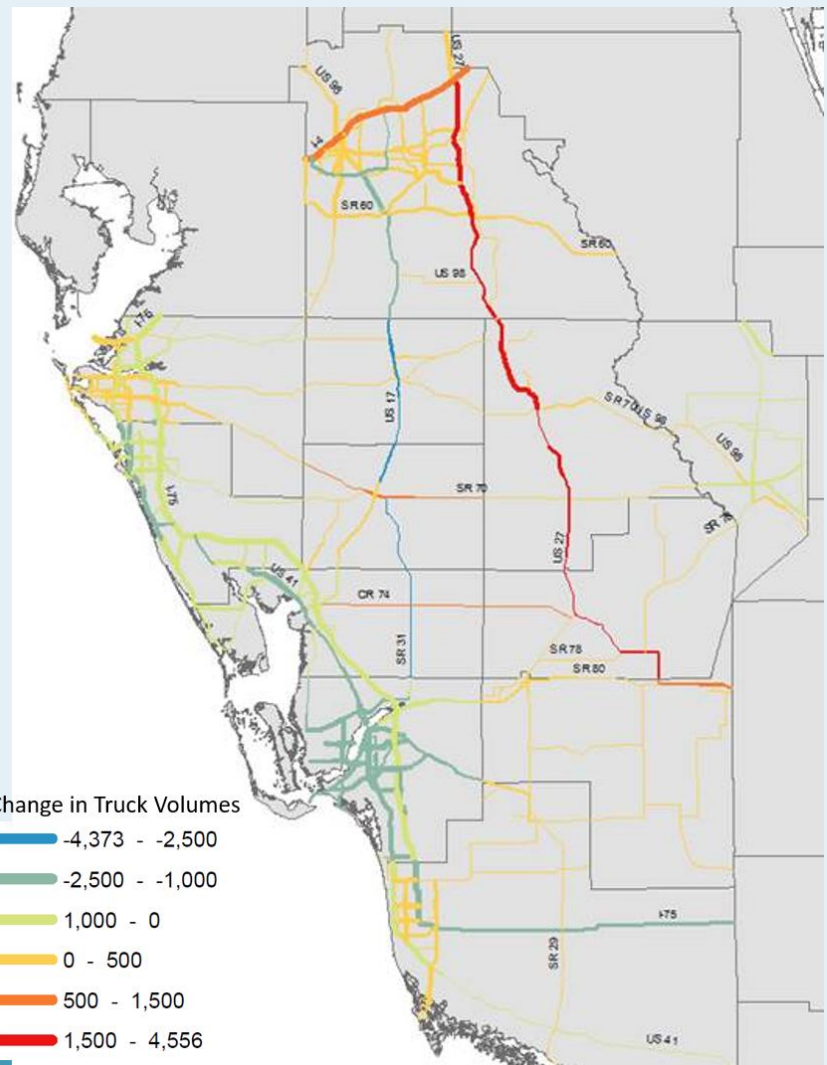
Road	Counties	Increase in Trucks in Year 2035 from Ag. Freight Shifts	Truck Traffic Projections for Year 2035 Without Ag. Shifts	Percent Increase in 2035 Truck Traffic from Ag. Freight Shifts
US 27	Highlands, Polk, Glades, Hendry	18,442	1,085,092	1.7%
SR 70	DeSoto, Highlands (east of Arcadia)	4,444	180,190	2.5%
SR 80	Hendry, Lee	4,103	200,152	2.0%

Values listed represent annual volumes. Truck traffic projections for year 2035 are interpolated from current 2017 and 2040 truck volume forecasts corresponding to a scenario without agricultural shifts.

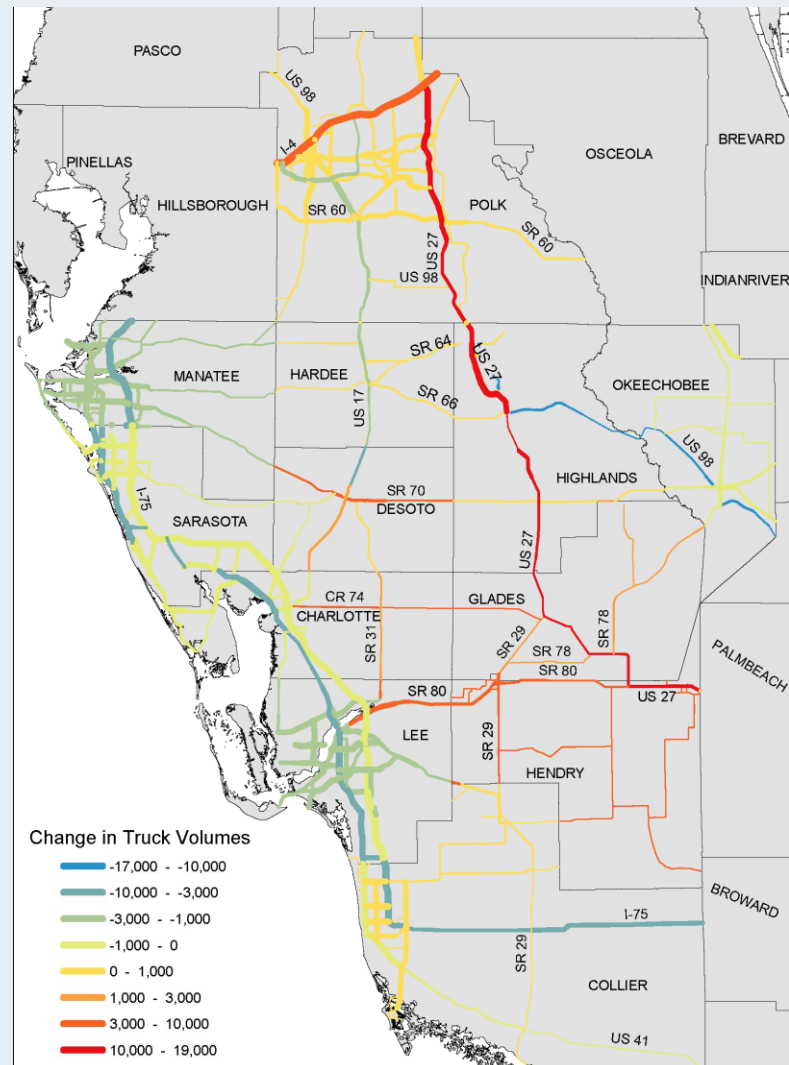
Forecasted Changes in Truck Vol Due to Urban Growth and Encroachment



Truck Volumes in Year 2020 (# of trucks)

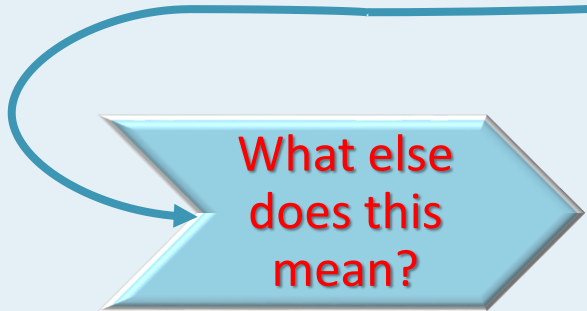


Truck Volumes in Year 2035 (# of trucks)



Note: Line thickness depicts 2013 AADT levels, an indication of current road conditions for all vehicle traffic. The thickness of the line is not related to the color displayed on the roads

Now...the rest of the Story...



Preventative measure: early road improvements before damages occur

Impact of Agricultural Shifts and Freight Movement Patterns on a Regional and County Basis



- **Encroachment will cause inland counties to grow**
 - Coastal counties expected to lose anywhere from 8% to 49% agriculture truck volume
 - Inland counties expected to grow anywhere from 8% to 12 % agriculture truck volume
 - Anticipated growth in truck volumes represent more than 57,000 additional truck trips through inland counties by 2035.
- **Significant freight movement through inland counties will allow for**
 - Towns like LaBelle and Moore Haven to become major agricultural hubs
 - Immokalee to flourish
- **Some bridges along trucking routes have overweight limitations:**
 - US 27 Fish Eating Creek
 - SR 31 Wilson Pigott Bridge*
 - SR 29 LaBelle Bridge*
 - Various bridges along county roads

Impact of Freight Movements on Key SIS Facilities & Local Roads



- **State roads & county roads in inland counties have potential to be SIS corridors**
 - 5% increase in heavy truck traffic will increase congestion & deterioration on county roads
- **SR 29 will be a facility connector**
 - joins US 27 and SR 80 with I-75 in Collier
 - Connects Immokalee market with future agricultural sites in Hendry & Glades and other points north and south
- **County roads become major connectors**
 - CRs 833, 835, 846, 832 and Oil Well Road in Collier and Hendry see increase in traffic connecting potential agricultural sites to US 27, SR 80, SR 29, and I-75
 - CR 74 in Glades connects US 27 to US 17 (Charlotte)

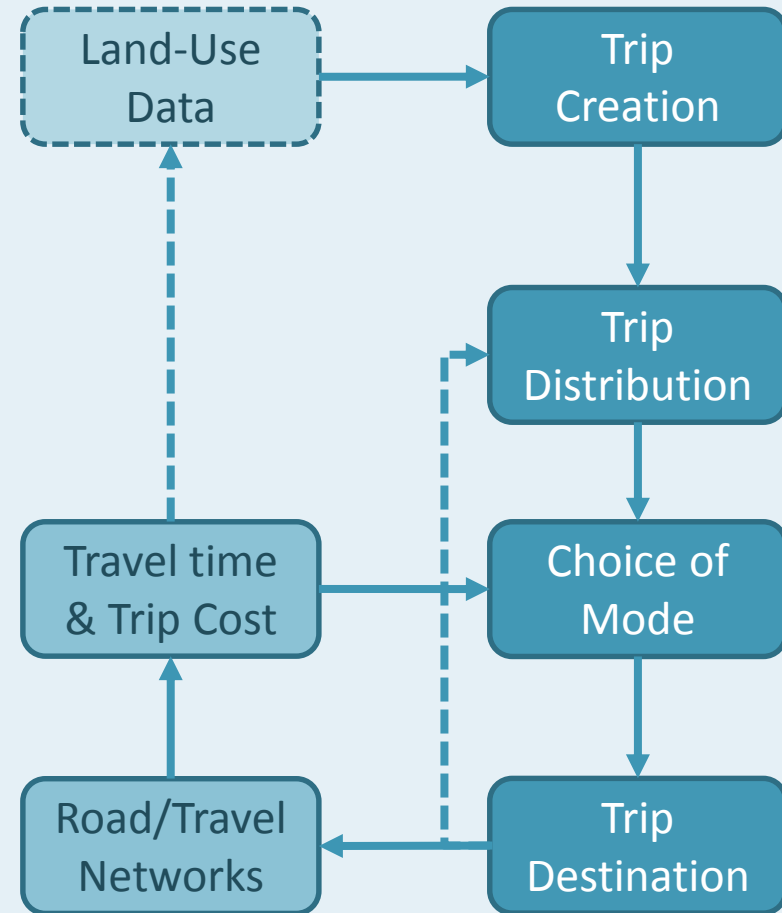
Table 6. Largest Increases in Heavy Truck Traffic on Potential Facility Connectors from Agriculture Shifts³⁵

Road	Counties	Increase in Trucks in Year 2035 from Ag. Freight Shifts	Truck Traffic Projections for Year 2035 Without Ag. Shifts	Percent Increase in 2035 Truck Traffic from Ag. Freight Shifts
SR 70	DeSoto (west of Arcadia)	6,061	171,152	3.5%
SR 29	Hendry, Glades, Collier	4,175	331,772	1.3%
SR 78	Hendry, Glades	1,705	209,120	0.8%

Useful Applications of the Study in other Planning Efforts



- **Incorporation of the Heavy Truck Traffic (HTT) component of the Travel Demand Model in District 1**
- **Information used in the study can allow for better predictions of anticipated truck volumes**
 - Current model does not account for land usage
 - Analysis presented covers only agriculture, but impact to the overall network may be significant from other means
 - Helps to show total affect on freight movement across all industries
 - Good supplement to other data sets
- **Preview of potential impacts to county and local road system if this anticipated shift in agriculture production occurs**



Report Conclusion – *Key Points*



- **Freight movement switching from northern and coastal counties of District 1 to southern & inland counties**
 - These freight movements will be using county roads
 - County roads less equipped to deal with heavy truck traffic, will lead to deterioration faster
- **Inland and southern shift will translate to shifting of truck traffic**
 - From US 17 to US 27 as the main north-south corridor
 - Higher dependence on east-west corridors and facility connectors (county roads)
- **More agricultural hubs, including:**
 - Hendry & Glades along respective county roads
 - Collier and Okeechobee as well connecting major facilities as freight movement flow changes
- **Towns in these areas will grow to match new freight activity and traffic levels**
 - More distribution centers and processing plants
 - Immokalee will flourish

Problem & Solution – Bridges over the Caloosahatchee River



- Only bridge authorized for Overweight Permit loads (80K-88K LB) is Moore Haven, US27:
- Add both bridges to District Bridge Maintenance Program for strengthening to upgrade load rating to 88,000 lbs each – APPROVED!
- Both upgrades proceeding sooner than anticipated...as much as 2 to 3 years
- Incentive clause provided to speed up the construction



Questions?

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