



Arterial Grid Analysis Study



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Study Purpose

- To study arterial grid operations in Miami-Dade County
 - Historical Development of Grid System
 - Existing Conditions
 - Future Conditions
- To evaluate ways to increase the efficiency and capacity of the network





Key Components

- Roadway Database

Station	GIS	Page	Date	Road	From	To	AWDT	PHP	Lanes	Functional Classification	Generalized Category
103	Y	2004-783	12/13/05	Bailes Rd	SE of US 1	SW 112 Ave	600	37	2	Urban Collector	Other County Road
104	Y	2004-784	05/10/05	SW 40 St	W of SW 27 Ave	US 1	17003	1205	2	Urban Collector	Major City/County Road
106	Y	2004-785	12/13/05	SW 40 St	W of HEFT	SW 127 Ave	53823	3619	4	Urban Minor Arterial	Major City/County Road
108	Y	2004-786	05/09/05	SW 42 St	SW 127 Ave	SW 137 Ave	44216	2866	4	Urban Minor Arterial	Major City/County Road
110	Y	2004-787	05/10/05	SW 42 St	SW 137 Ave	SW 147 Ave	32286	2359	4	Urban Collector	Major City/County Road
112	Y	2004-788	05/10/05	SW 42 St	SW 147 Ave	SW 157 Ave	19993	1401	4	Urban Collector	Major City/County Road
114	Y	2004-789	05/23/05	Caribbean Blvd	E of US 1	Franjo Rd	23233	1781	2	Urban Collector	Major City/County Road
118	Y	2004-791	05/10/05	SW 24 St	SW 37 Ave	SW 57 Ave	19870	1424	4	Urban Minor Arterial	Major City/County Road
120	Y	2004-792	05/10/05	SW 24 St	SW 57 Ave	Palmetto Expressway	36893	2721	4	Urban Minor Arterial	Major City/County Road
122	Y	2004-793	05/16/05	SW 24 St	Palmetto Expressway	SW 87 Ave	53853	3702	6	Urban Minor Arterial	Major City/County Road
124	Y	2004-794	05/16/05	SW 24 St	SW 87 Ave	SW 97 Ave	50056	3369	6	Urban Minor Arterial	Major City/County Road
126	Y	2004-795	05/16/05	SW 24 St	SW 97 Ave	SW 107 Ave	41140	2877	6	Urban Minor Arterial	Major City/County Road
128	Y	2004-796	05/16/05	SW 24 St	SW 107 Ave	HEFT	46050	3211	4	Urban Minor Arterial	Major City/County Road
130	Y	2004-797	05/16/05	SW 26 St	W of HEFT	SW 127 Ave	48723	3544	4	Urban Minor Arterial	Major City/County Road
132	Y	2004-798	05/16/05	SW 26 St	SW 127 Ave	SW 137 Ave	29846	2177	4	Urban Minor Arterial	Major City/County Road
134	Y	2004-799	05/10/05	SW 26 St	SW 137 Ave	SW 147 Ave	26916	2006	4	Urban Minor Arterial	Major City/County Road
136	Y	2004-800	01/24/06	Crandon Blvd	N of Harbor Dr	Virginia Key	28250	2251	4	Urban Principal Arterial-Other	Major City/County Road
137	Y	2004-801	01/03/06	Curtiss Pkwy	S of Okeechobee Rd	NW 36 St	18570	1492	4	Urban Minor Arterial	Major City/County Road
138	Y	2004-802	01/17/06	SW Dadeland Blvd	S of SW 88 St	US 1	23510	1920	4	Urban Collector	Major City/County Road
140	Y	2004-803	01/03/06	E 1 Ave (NE)	E 21 St	US 27	6843	627	3	Urban Collector	Major City/County Road
142	Y		12/xx/00	E 1 Ave	Okeechobee Rd	Poinciana Blvd	17120	1712	2	Urban Collector	Major City/County Road
144	Y	2004-804	01/03/06	E 3 Ave	US 27	E 25 St	28233	2320	4	Urban Minor Arterial	Major City/County Road
146	Y	2004-806	01/03/06	East Dr	US 27	NW 36 St	18023	1668	4	Urban Collector	Major City/County Road
148	Y	2004-808	01/03/06	SW 24 St	SW 127 Ave	SW 137 Ave	32286	2359	4	Urban Collector	Major City/County Road





Key Components

- GIS Map Series
 - Existing Traffic Volume, Right-of-Way, Number of Lanes, LOS
 - Projected Future (2015 Planning Horizon) Conditions





Key Findings

- Historical development of grid system
 - Based on land planning and surveying principles utilized in 1800s and early 1900s
 - Section line and half-section line roads
- Grid roadway systems
 - Connectivity and accessibility





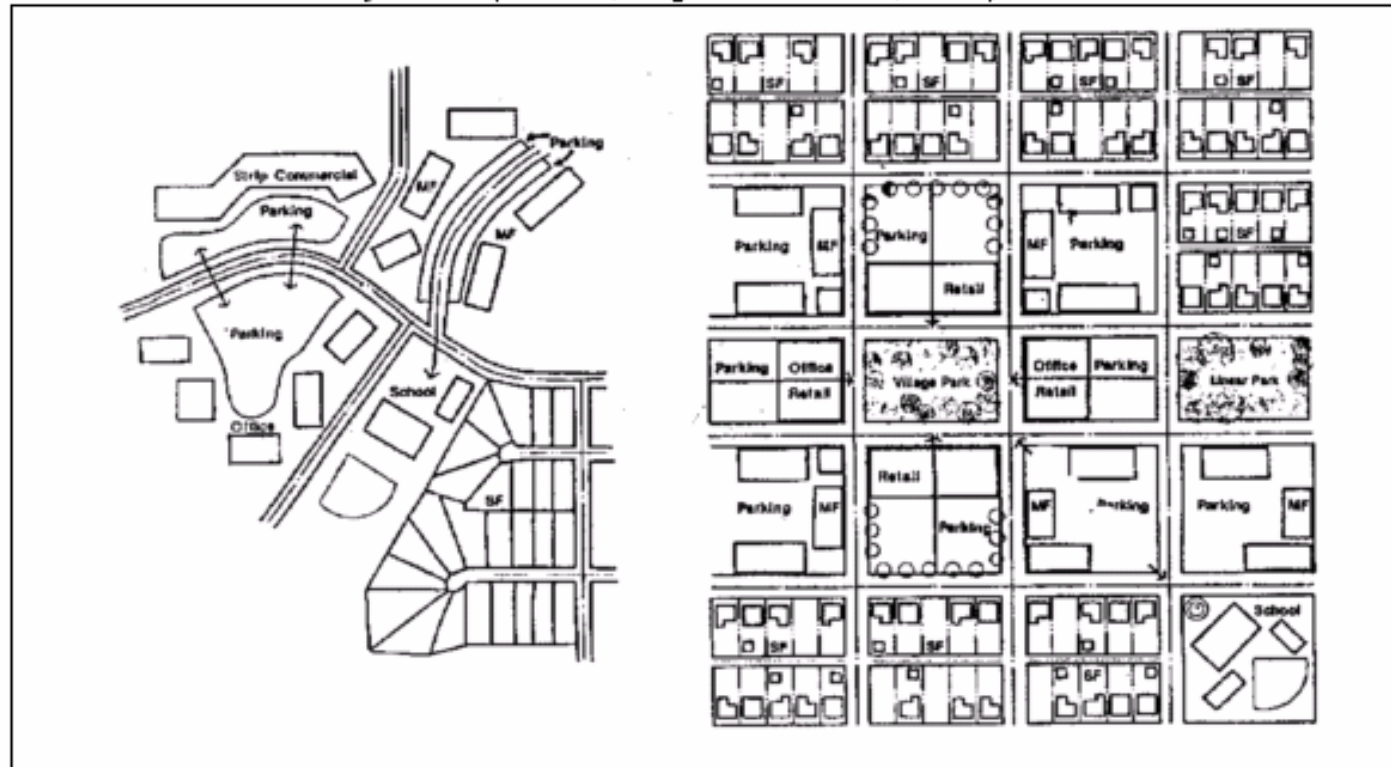
Key Findings

- Hierarchical system of roadways favored between 1960 and 1990's
 - Concentrates traffic onto fewer roadways by reducing connectivity of non-arterials
 - Local streets are often dead-end or cul-de-sacs
 - Collectors usually lead to only one arterial
 - Modern areas of the County including many western suburban residential areas developed in this manner





Hierarchical and Connected Road Systems (Kulash, Anglin and Marks, 1990)





Key Findings

- Grid vs. Hierarchical – The Paradox
 - Well-defined grid roadway system in urban core areas is able to handle **higher** density with less congestion
 - Modern areas of the County developed with **lower** density tend to exhibit worse traffic congestion
 - Lack of a well-defined grid roadway system
 - Concentration of commercial land use along arterial roadways





Key Findings

- Planned capacity improvements are not sufficient to keep pace with expected traffic growth
 - Future (2015) analysis indicates a 5 percent growth in LOS F roadway segments, even after accounting for LRTP Priority I and II projects
 - “We can’t build our way out of congestion”





Key Findings

- Functional classification analysis
 - Arterials
 - 48 percent of arterials operate at LOS F
 - Collectors
 - 19 percent of collectors operate at LOS F
- Connectivity improvements to collector roadways may help relieve adjacent failing arterials





Recommendations

- Project recommendations include capacity modifications to existing roadways and constructing missing links to enhance connectivity
 - Screening process
 - LOS E or F
 - “Available” right-of-way to expand within roadway design standards



Project Recommendations

Table ES-1. Potential Arterial Grid Projects Identified in LRTP Priority III or IV

Road	From	To	Potential	Project Type	LRTP Priority
S'W 24 Street	S'W 87 Avenue	S'W 107 Avenue	6L	Type I	Priority III
S'W 24 Street	S'W 107 Avenue	S'W 117 Avenue	6L	Type I	Priority IV
S'W 16 Street	S'W 71 Avenue	S'W 82 Avenue	Overpass across Palmetto Expwy	Type II	Priority IV
S'W 47/48 Street	S'W 112 Avenue	S'W 122 Avenue	Overpass across HEFT	Type II	Priority IV

Table ES-2. Arterial Grid Analysis Study – Recommended Capacity Projects

Road	From	To	Potential	Project Type
S'W 56 Street	S'W 57 Avenue	S'W 67 Avenue	4L	Type I
S'W 56 Street	S'W 87 Avenue	S'W 107 Avenue	6L	Type I
S'W 56 Street	S'W 127 Avenue	S'W 147 Avenue	6L	Type I
S'W 117 Avenue	S'W 40 Street	S'W 104 Street	6L	Type I
S'W 117 Avenue	S'W 136 Street	S'W 134 Street	6L	Type I / III
S'W 117 Avenue	Quail Roost Dr	US 1	4L	Type I
S'W 137 Avenue	S'W 56 Street	S'W 72 Street	6L	Type I
S'W 157 Avenue	S'W 104 Street	S'W 112 Street	4L	Type II
S'W 157 Avenue	S'W 136 Street	S'W 152 Street	4L	Type II
NW 106 Street	HEFT	NW 116 Way	6L	Type III
NW 116 Way	NW 106 Street	US 27	6L	Type III
Hialeah Gardens Blvd	US 27	NW 138 Street	6L	Type III
S'W 102 Avenue	Over Cutter Drain		Bridge	Type II
S'W 77 Avenue	S'W 159 Terrace	S'W 160 Terrace	Bridge	Type II
S'W 77 Avenue	S'W 173 Street	S'W 174 Street	Bridge	Type II



Policy Recommendations

- Maintain both section line and half-section line right-of-way along existing roadways and theoretical roadways
- Maintain at least 130 feet of ROW along section lines in rural and suburban areas.
- Maintain at least 86 feet of ROW along section lines in urban centers where the roadway is not planned to have more than four through lanes.
- Maintain at least 80 feet of ROW along half-section lines.
- Right-of-way standards identified above should be applied both within and outside of the existing urban development boundary (UDB).
- Improve connectivity and capacity of collector roadways to relieve failing parallel arterials.
- Encourage mixed-use nodes supported by a grid roadway system to relieve arterials from their commercial accessibility function



Thank you for your attention.

Do you have any questions or comments?

