FDOT

HIGHWAY CAPACITY SOFTWARE 2010

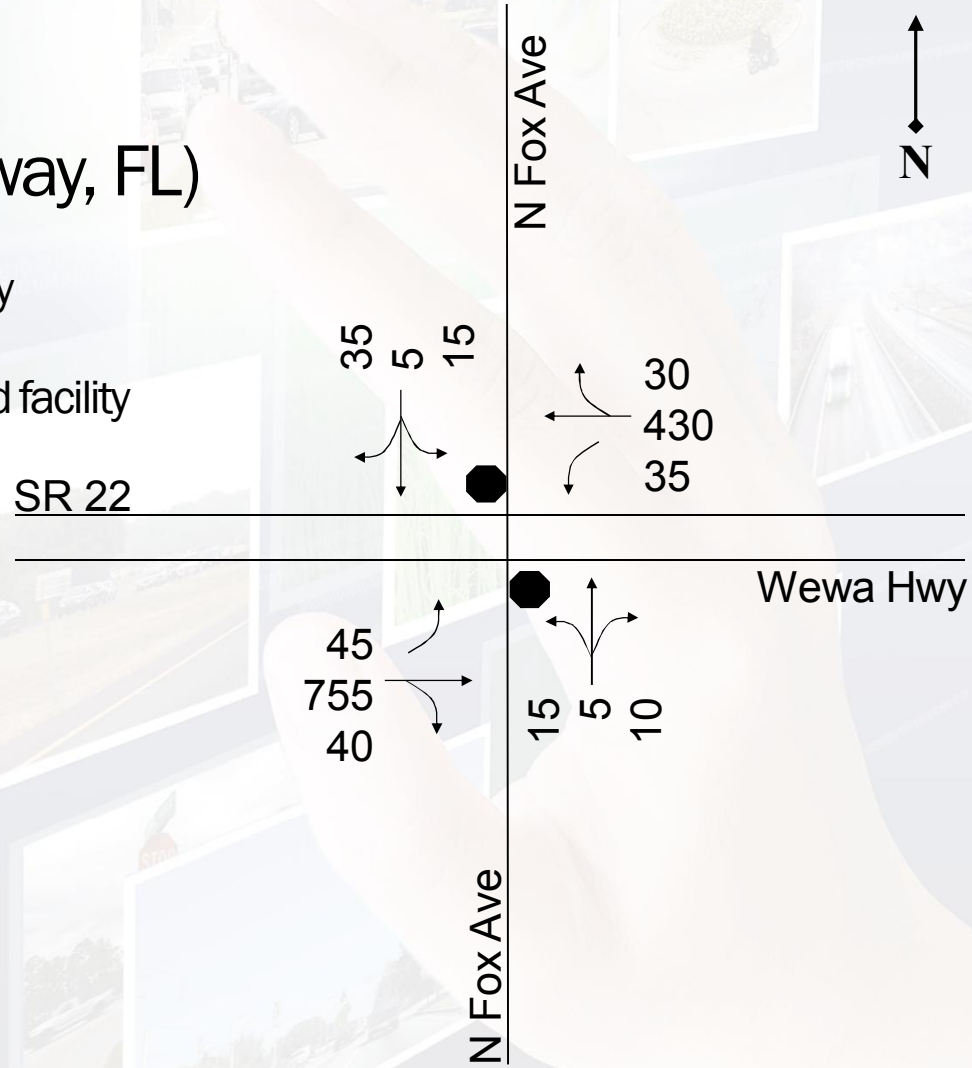
PROBLEM SET

TWSC

Example #1:

SR 22 at Fox Avenue (Callaway, FL)

- Major street (SR 22): 2-lane divided facility
  - Two way left turn lane median
- Minor street (N. Fox Ave): 2-lane undivided facility
  - Flared right turn
  - Storage for one vehicle on each approach
- PHF – 0.92 for all movements
- 6% heavy vehicles on all movements
- Level terrain on N. Fox Ave
- 10 peds/hr crossing NB/SB approaches

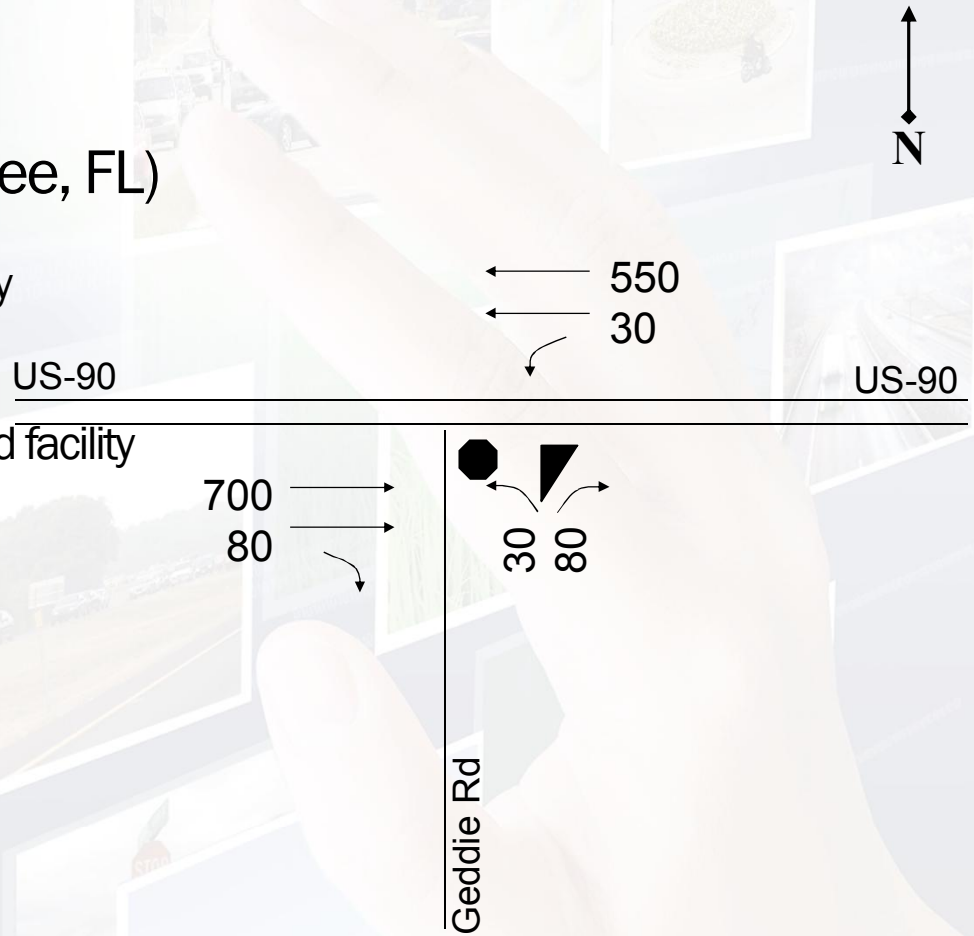


TWSC

Workshop #1:

US-90 at Geddie Road (Tallahassee, FL)

- Major Street (US-90): 4-lane divided facility
  - Raised curb median
  - Storage in median for 1 vehicle
- Minor Street (Geddie Rd): 2-lane undivided facility
  - Channelized right turn
- PHF – 0.90 for all movements
- 9% heavy vehicles on all approaches
- Level terrain on Geddie Rd
- No pedestrian activity

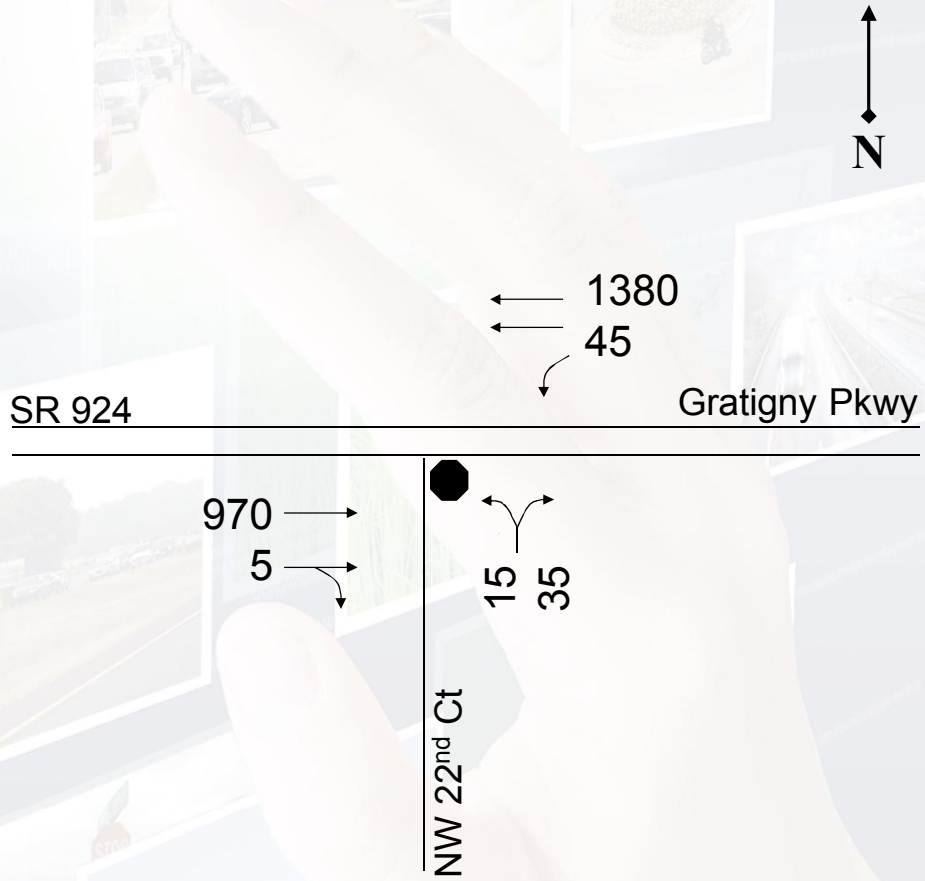


TWSC

Workshop #2:

SR 924 at 22nd Court (Miami, FL)

- Major street (SR 924): 4-lane divided facility
  - Raised curb median
  - Storage in median for 1 vehicle
- Minor street (NW 22nd Ct): 2-lane undivided facility
- 0.89 – PHF for all approaches
- 3% heavy vehicles on all movements
- Level terrain on NW 22nd Ct
- No pedestrian activity
- Upstream traffic signal (420' to the west)
  - 35 MPH progression speed
  - 120 second cycle length
  - Progressed volume – 850 vehicles/hr
  - Arrival type 5
  - Effective green – 45 seconds

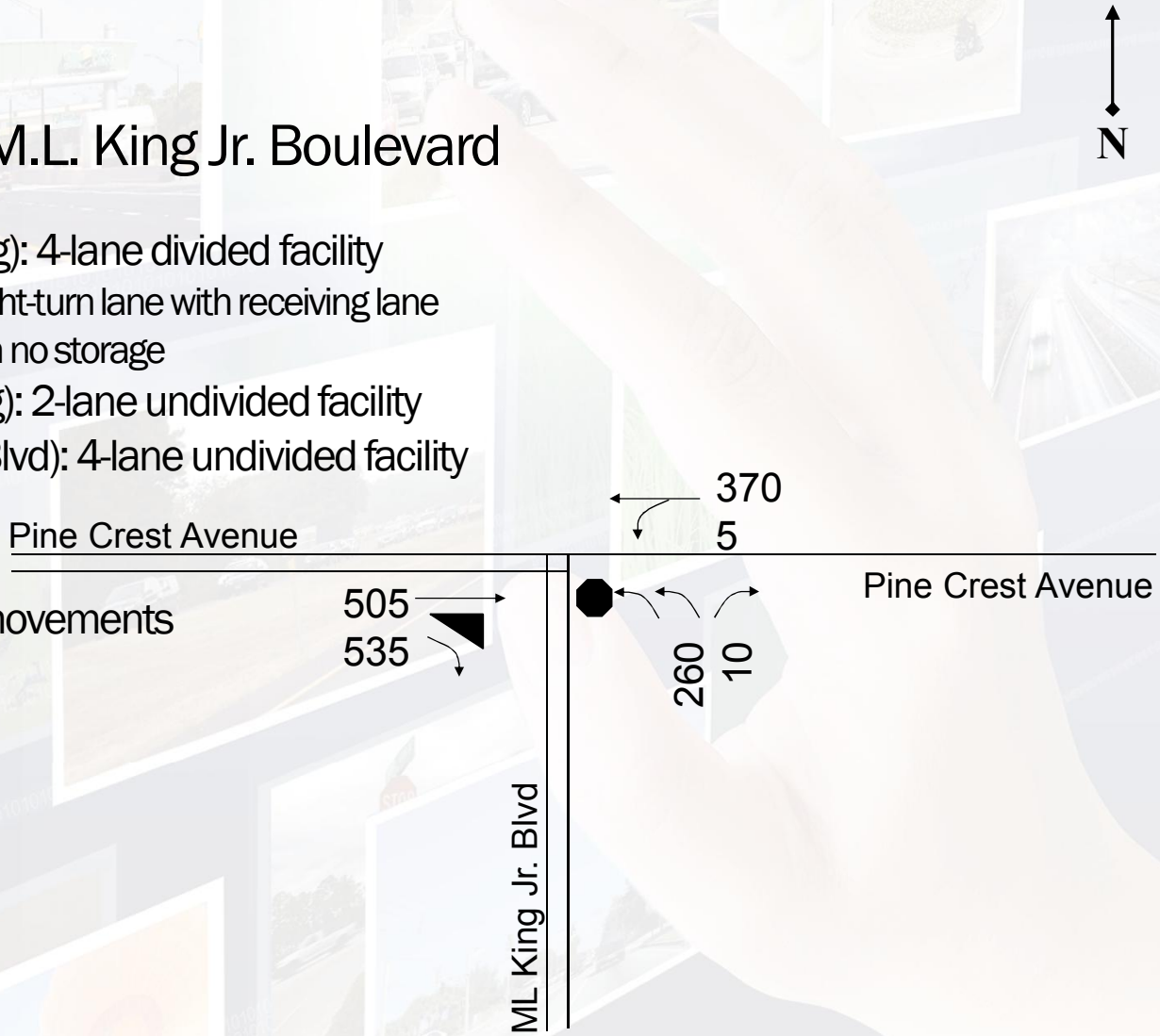


TWSC

Workshop #3:

Pine Crest Avenue at M.L. King Jr. Boulevard

- Pine Crest Ave (western leg): 4-lane divided facility
  - Free-flow channelized right-turn lane with receiving lane
  - Raised curb median with no storage
- Pine Crest Ave (eastern leg): 2-lane undivided facility
- Minor Street (ML King Jr. Blvd): 4-lane undivided facility
- PHF – 0.90 for all approaches
- 2% heavy vehicles on all movements
- No grades
- No pedestrian activity

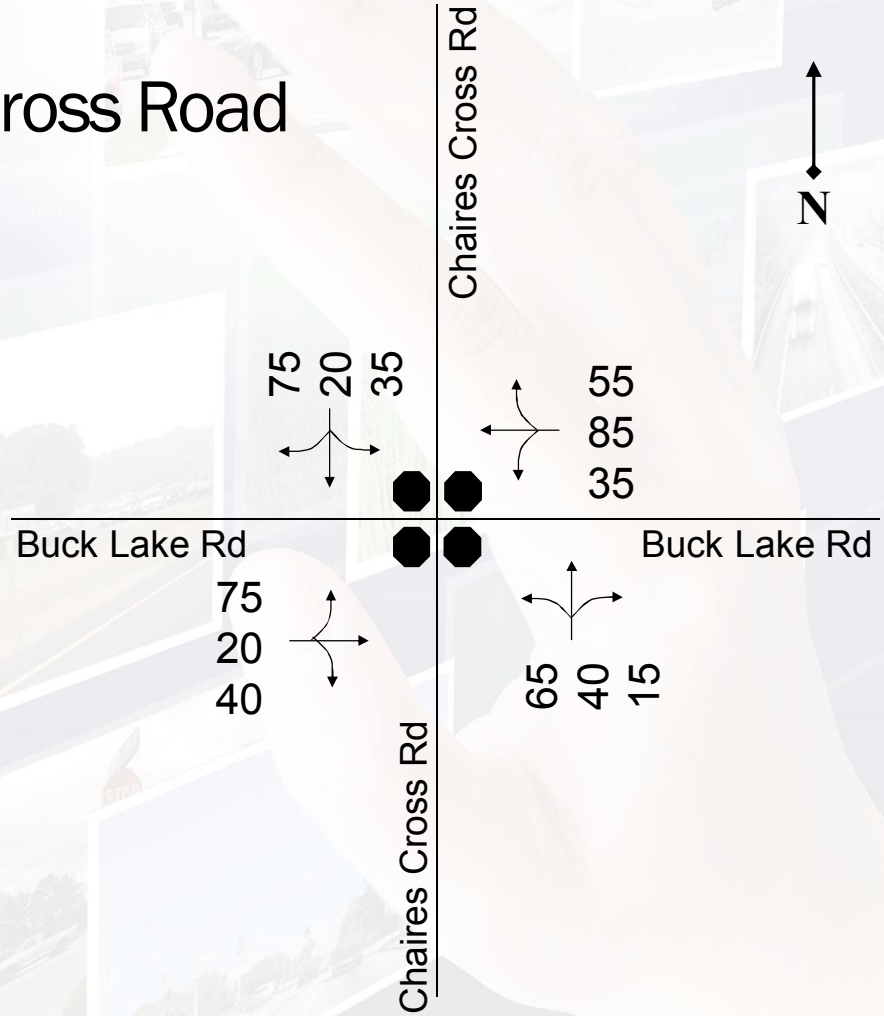


AWSC

Example #2:

Buck Lake Road at Chaires Cross Road (Tallahassee, FL)

- Buck Lake Rd: 2-lane undivided facility
- Chaires Cross Rd: 2-lane undivided facility
- PHF – 0.94 for all movements
- 3% heavy vehicles on Chaires Cross Rd
- 5% heavy vehicles on Buck Lake Rd
- No pedestrians

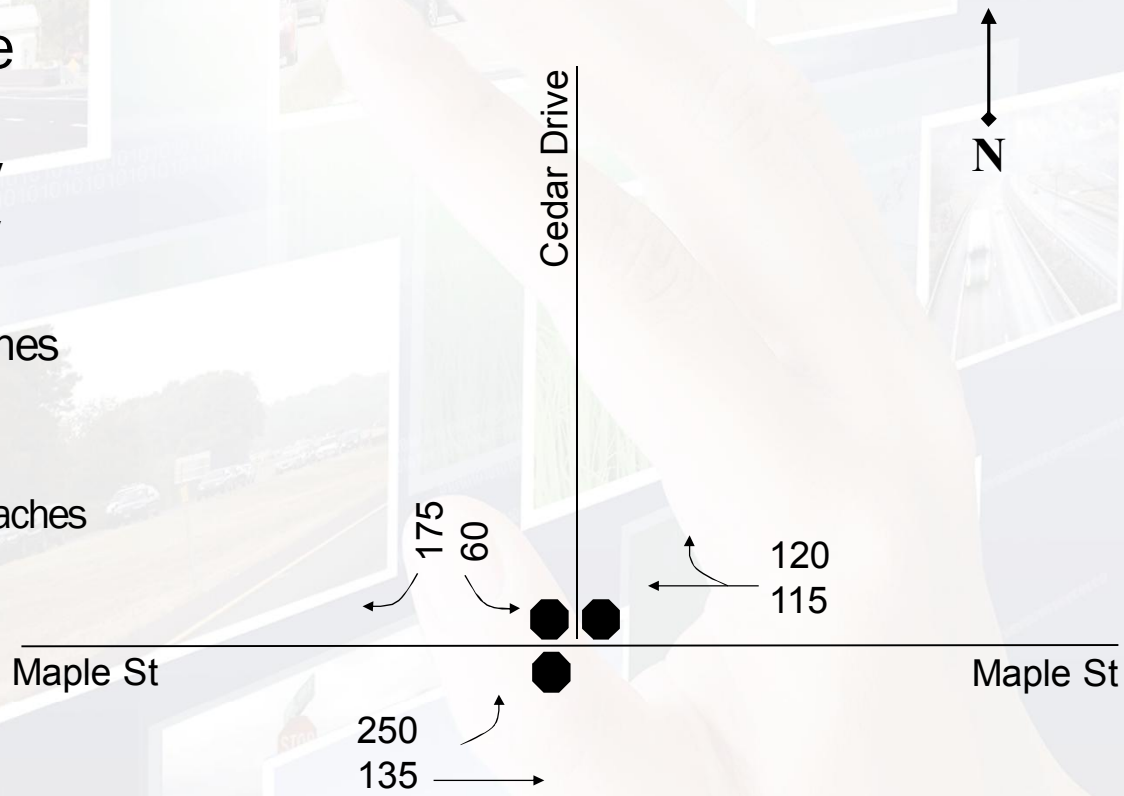


AWSC

Workshop #4A:

Maple Street at Cedar Drive

- Maple St: 2-lane undivided facility
- Cedar Dr: 2-lane undivided facility
- PHF – 0.85 for all movements
- 2% heavy vehicles on all approaches
- Level terrain
- Pedestrian activity
  - 25 peds/hr on the EB/SB approaches

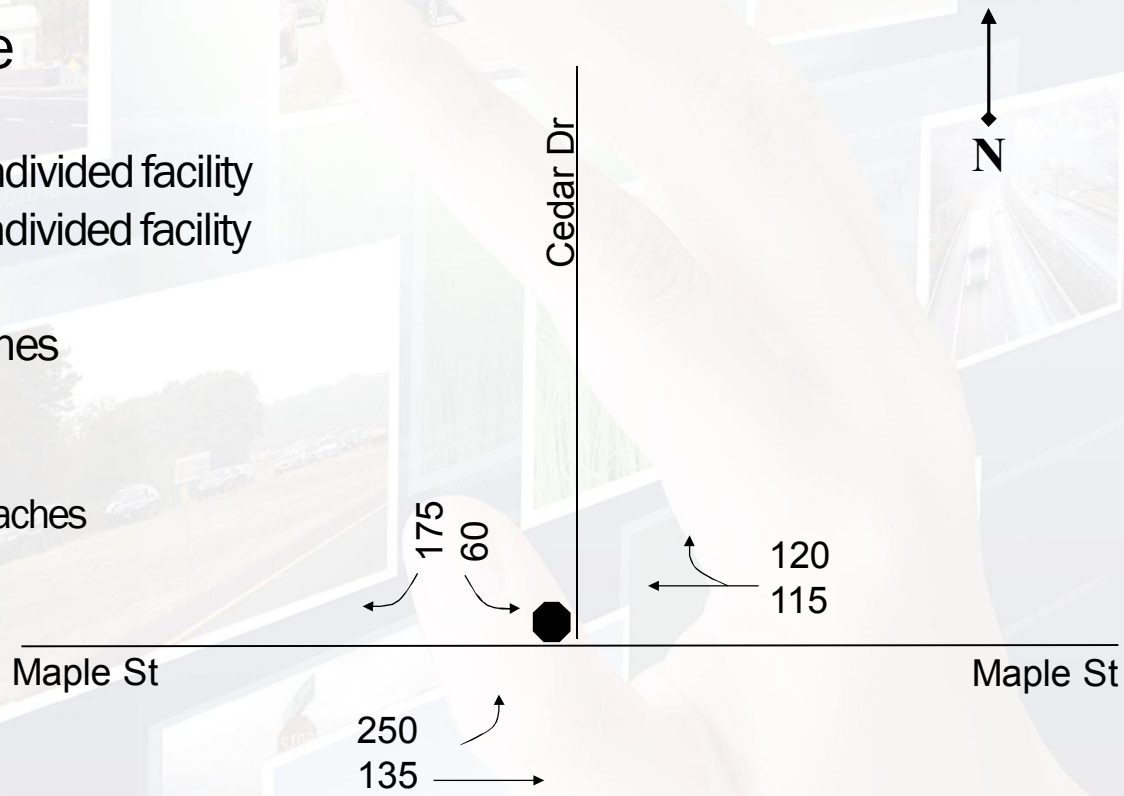


TWSC

Workshop #4B:

Maple Street at Cedar Drive

- Major Street (Maple St): 2-lane undivided facility
- Minor Street (Cedar Dr): 2-lane undivided facility
- PHF – 0.85 for all movements
- 2% heavy vehicles on all approaches
- Level terrain on Cedar Dr
- Pedestrian activity
  - 25 peds/hr on the EB/SB approaches
  - Walking speed = 3.5 ft/sec



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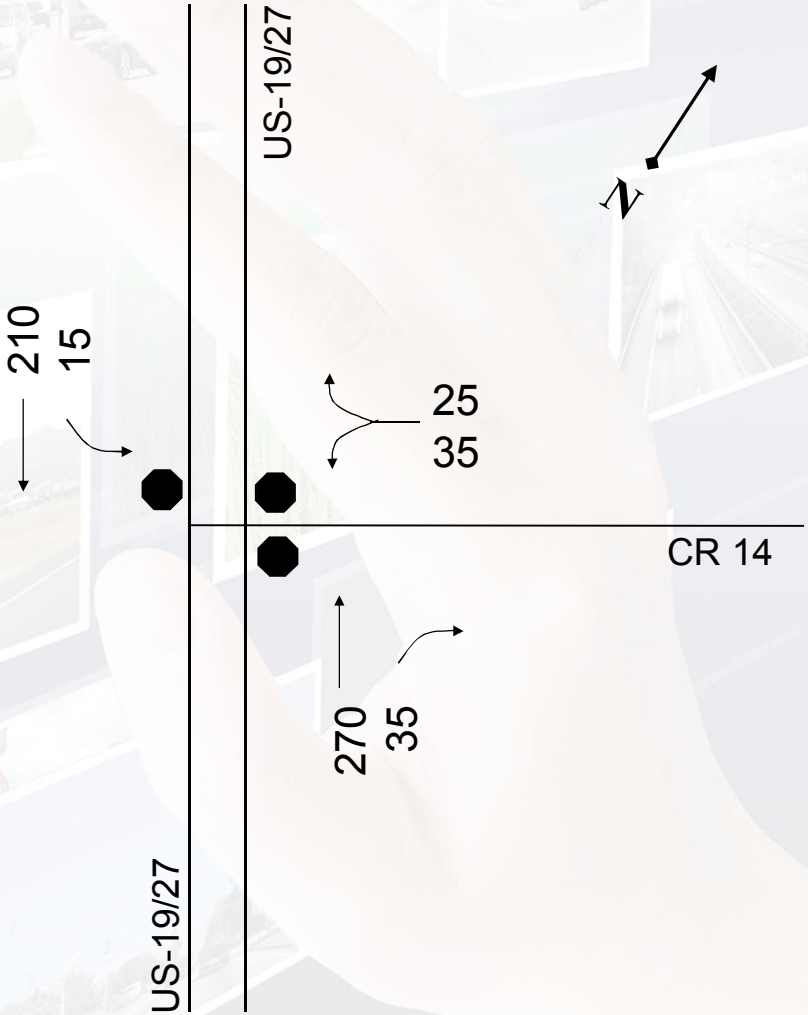
AWSC

Workshop #5:

US-19/27 at CR 14 (Greenville, FL)

- Major street (US-19/27): 2-lane divided facility with 50' median
- Minor street (CR 14): 2-lane undivided facility
- PHF – 0.90 for all movements
- 10% heavy vehicles on US-19/27
- 3% heavy vehicles on CR 14

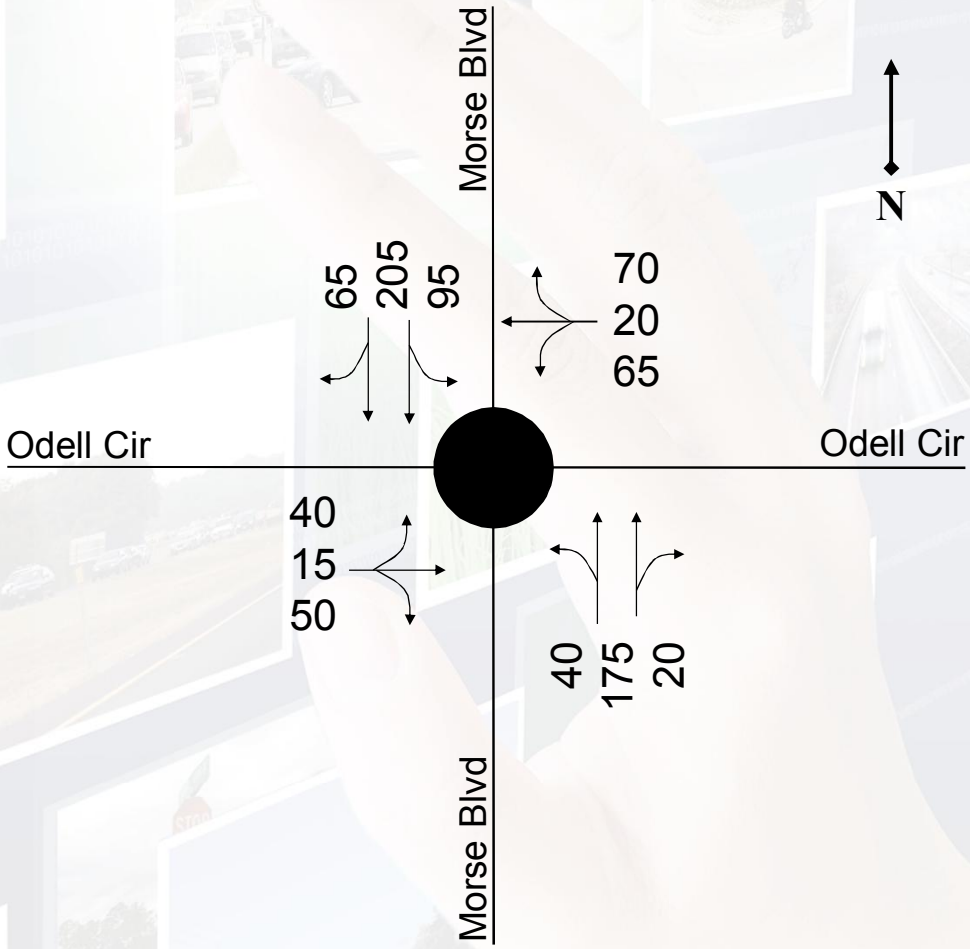


Roundabouts

Example #3:

Morse Boulevard at Odell Circle
(The Villages, FL)

- Morse Boulevard
  - 4-lane divided facility
- Odell Circle
  - 2-lane undivided facility
- 2 circulating lanes
- No right-turn bypass lane
- No pedestrians
- PHF – 0.96 for all approaches
- 3% heavy vehicles on all approaches

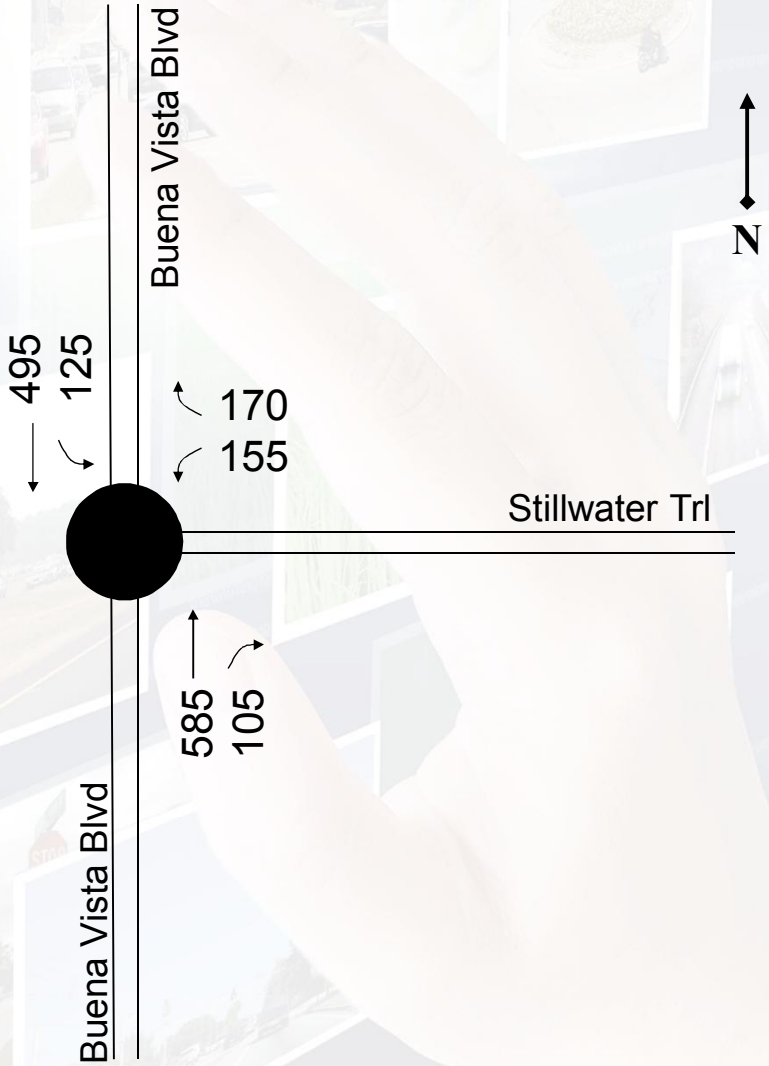


Roundabouts

Workshop #6:

Buena Vista Blvd at Stillwater Trail
(The Villages, FL)

- Buena Vista Blvd
  - 4-lane divided facility with 16' median
- Stillwater Trl
  - 4-lane divided facility with 16' median
- 2 circulating lanes
- No right-turn bypass lanes
- No pedestrians
- PHF – 0.92 for all approaches
- 2% heavy vehicles on all movements

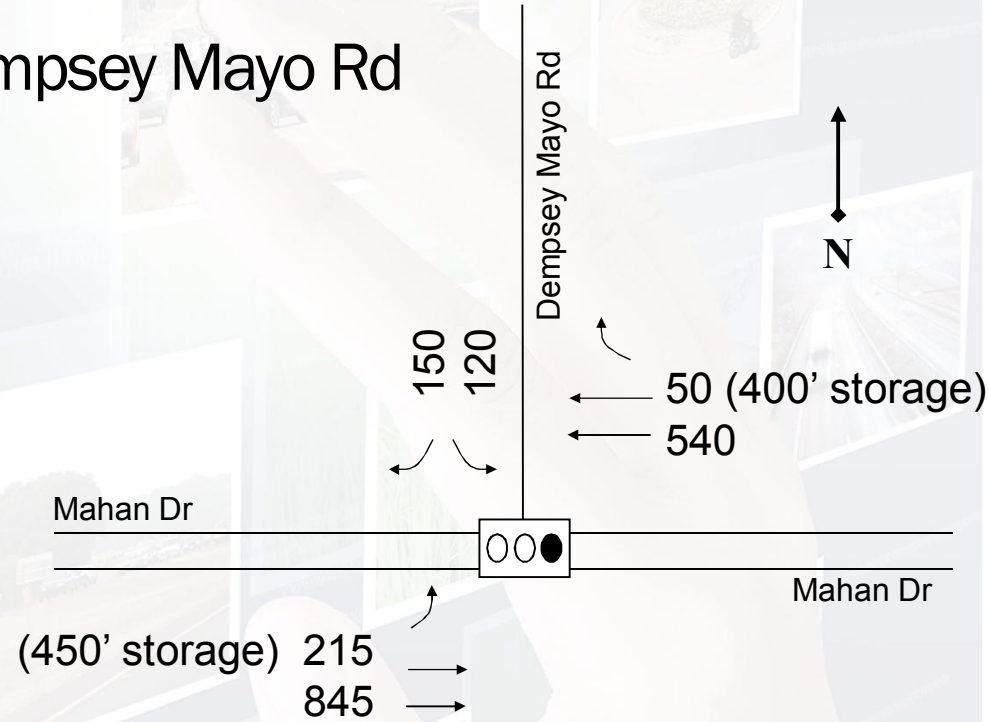


Signalized Intersections

Example #4: Mahan Dr at Dempsey Mayo Rd (Tallahassee, FL)

- Forward direction – eastbound
- PHF – 0.95 for all movements
- 6% HV on major approaches
- 3% HV on minor approach
- Level terrain
- Arrival type 4 on mainline, 3 on side street
- 45 MPH speed limit on all approaches
- Cycle length – 80 seconds (actuated-coordinated)

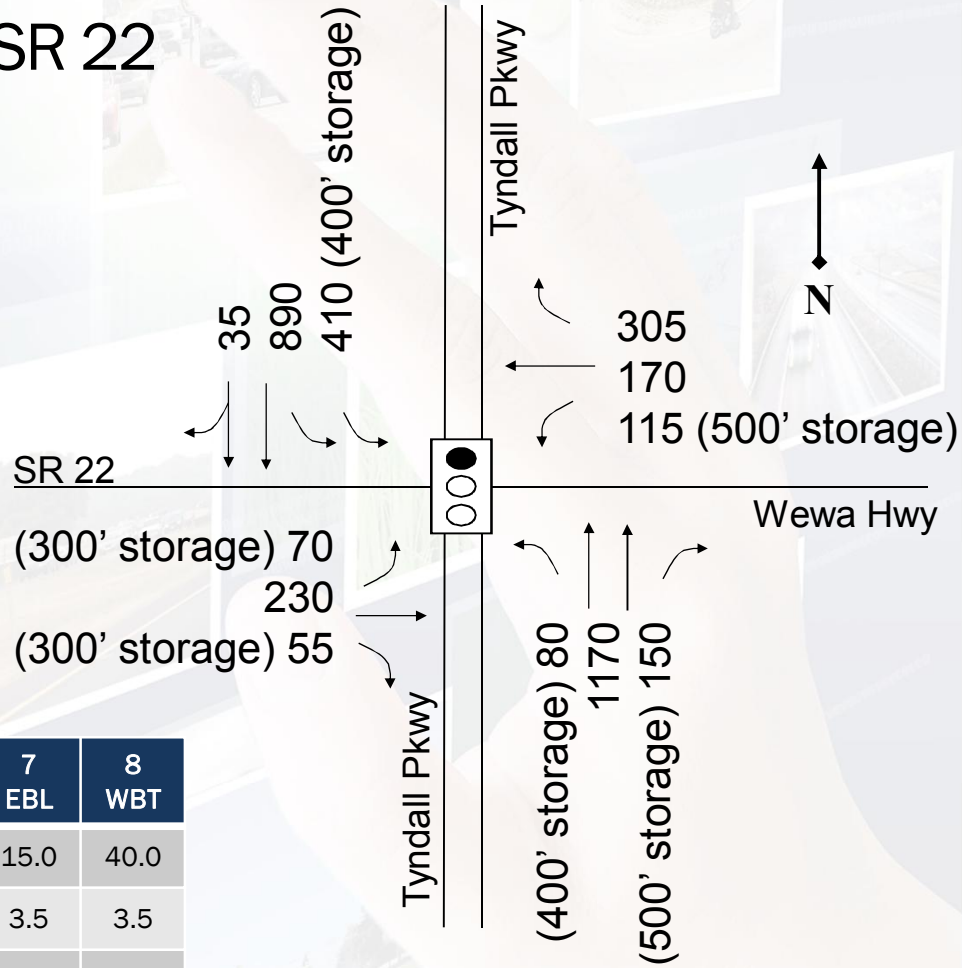
Phase Approach	2 EBT	4 SBT	5 EBL	6 WBT
Phase Split	64.0	16.0	18.0	46.0
Yellow	4.4	4.0	3.0	4.3
Red	1.6	1.0	3.5	1.7
Min. Green	15.0	5.0	5.0	15.0
Recall	Min	Off	Off	Min



Signalized Intersections

Workshop #7: Tyndall Pkwy at SR 22 (Callaway, FL)

- Forward direction – northbound
- PHF – 0.90 for all movements
- Saturation – 1950 pc/h/ln
- 6% heavy vehicles for all movements
- Level terrain
- Arrival type 4 on mainline, 3 on side street
- 35 MPH speed limit on all approaches
- Cycle length – 160 seconds (coordinated)
- Protected RT at phases: 1, 3, 5
- E/W LT phases are protected + permitted
- Field-measured phase times are used



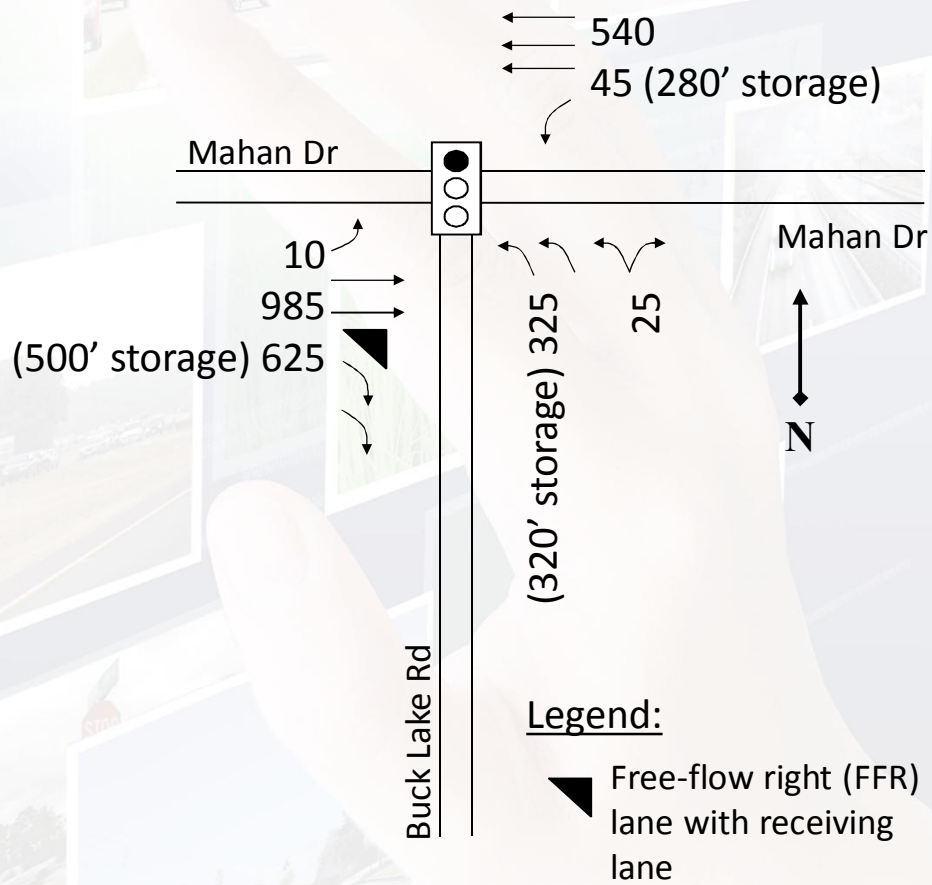
Phase Approach	1 SBL	2 NBT	3 WBL	4 EBT	5 NBL	6 SBT	7 EBL	8 WBT
Phase Split	30.0	75.0	15.0	40.0	30.0	75.0	15.0	40.0
Yellow	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Red	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Min. Green	8	15	8	15	8	15	8	15
Recall	Off	Max	Off	Off	Off	Max	Off	Off

Signalized Intersections

Workshop #8: Mahan Dr at Buck Lake Rd (Tallahassee, FL)

- Forward direction – eastbound
- PHF – 0.92 for all approaches
- 8% heavy vehicles on all movements
- Level terrain
- Arrival type 3
- 45 MPH speed limit on all approaches
- Cycle length – 160 seconds
- Field-measured phase times are used

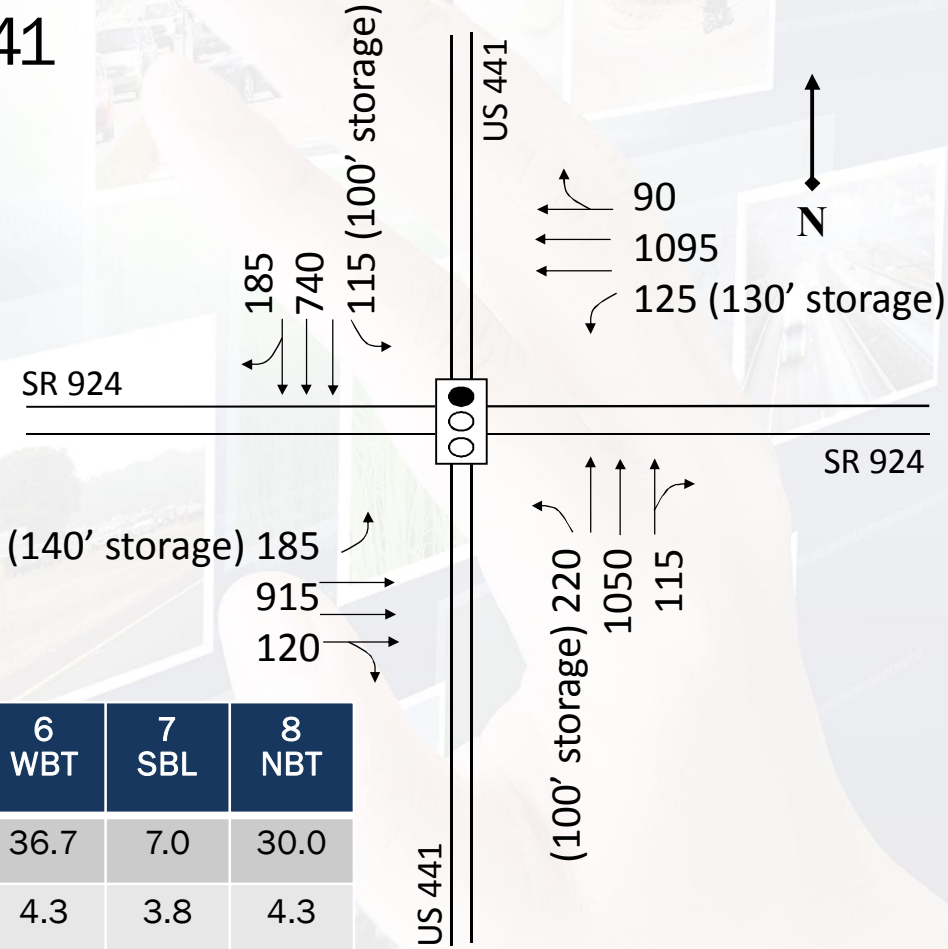
Phase Approach	1 WBL	2 EBT	3 NBL	6 WBT
Split	18.0	100.0	42.0	118.0
Yellow	3.0	4.1	3.0	4.1
Red	3.3	1.9	4.0	1.9
Min. Green	4.0	18.0	7.0	18.0
Recall	Off	Max	Off	Off



Signalized Intersections

Workshop #9: SR 924 at US 441 (Miami, FL)

- Forward direction – eastbound
- PHF – 0.96 for all approaches
- 3% heavy vehicles on all movements
- Level terrain
- Arrival type 3
- 35 MPH speed limit on all approaches
- Cycle length – 100 seconds (pre-timed)
- Uncoordinated intersection

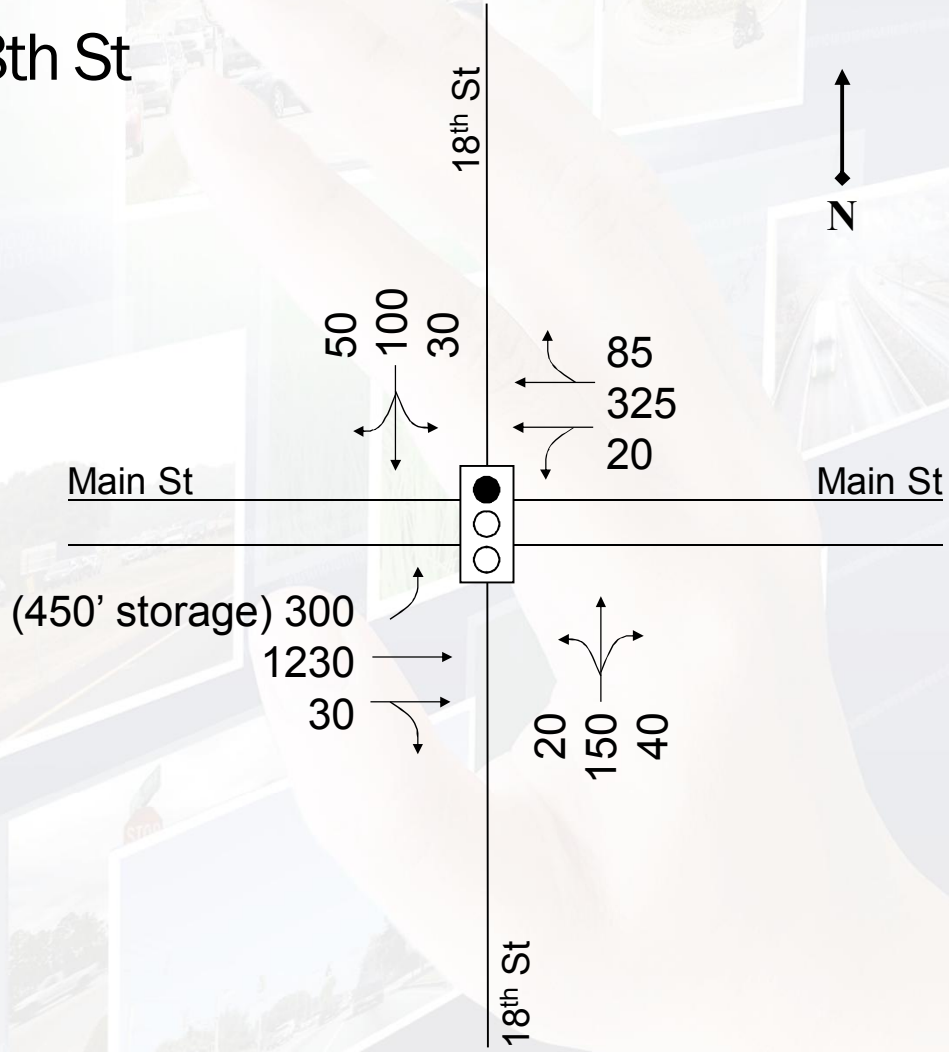


Phase Approach	1 WBL	2 EBT	3 NBL	4 SBT	5 EBL	6 WBT	7 SBL	8 NBT
Max. Green	7.0	36.7	7.0	30.0	7.0	36.7	7.0	30.0
Yellow	4.2	4.3	3.8	4.3	4.2	4.3	3.8	4.3
Red	0.0	1.3	0.0	1.4	0.0	1.3	0.0	1.4
Min. Green	5.0	7.0	5.0	7.0	5.0	7.0	5.0	7.0

Signalized Intersections

Workshop #10: Main St at 18th St

- Forward direction – eastbound
- PHF – 0.90 for all movements
- 2% heavy vehicles for all movements
- Level terrain
- Arrival type 3
- 25 MPH speed limit for all approaches
- Cycle – 120 sec (pre-timed)
- 7 sec walk-time, 11-sec ped clearance
- 40 peds/hr crossing all approaches
- Split phasing on 18th St (NB is lag phase)
- Uncoordinated intersection
- Field-measured phase times are used

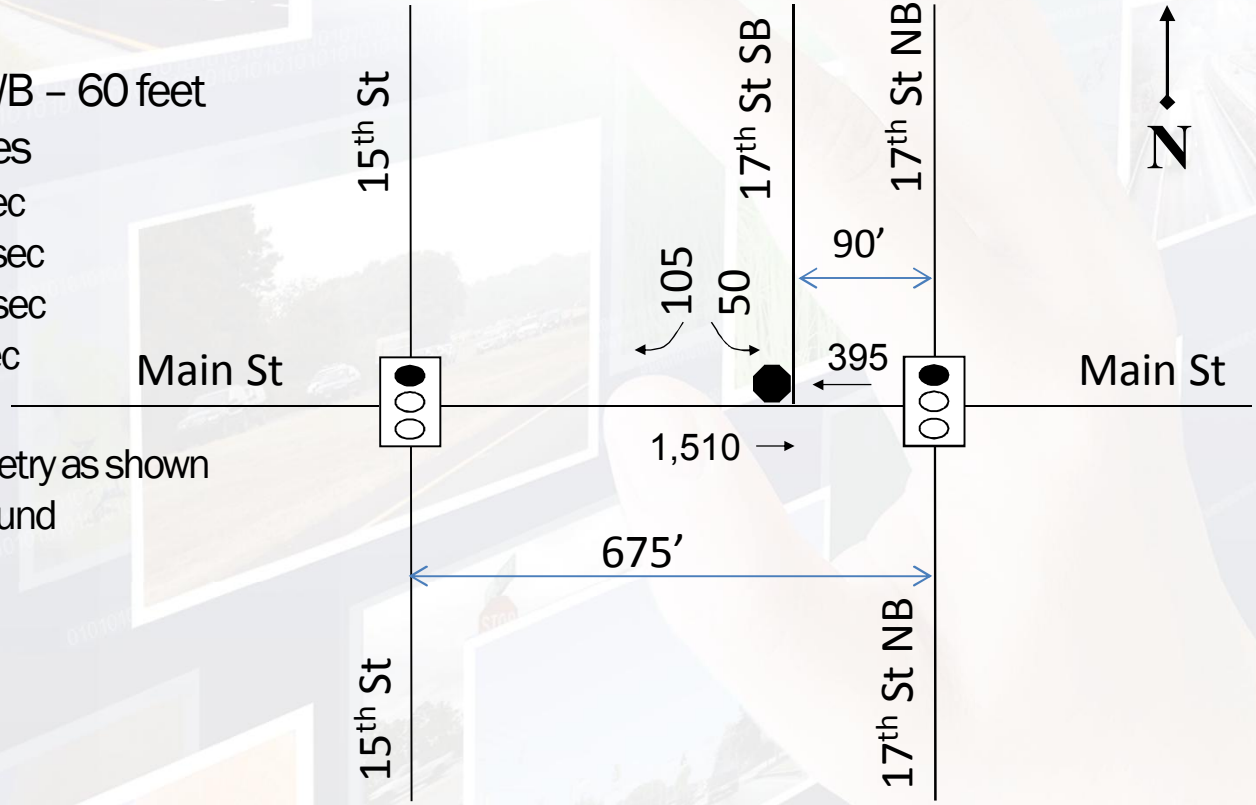


Phase Approach	2 EBT	5 EBL	6 WBT	8 NBT/SBT
Max. Green	54.5	18.5	30.5	24.5
Yellow	3.5	3.5	3.5	3.5
Red	2.0	2.0	2.0	2.0
Min. Green	4	4	4	4

Urban Streets - Segments

Example #5: Main St between 15th St and 17th St NB

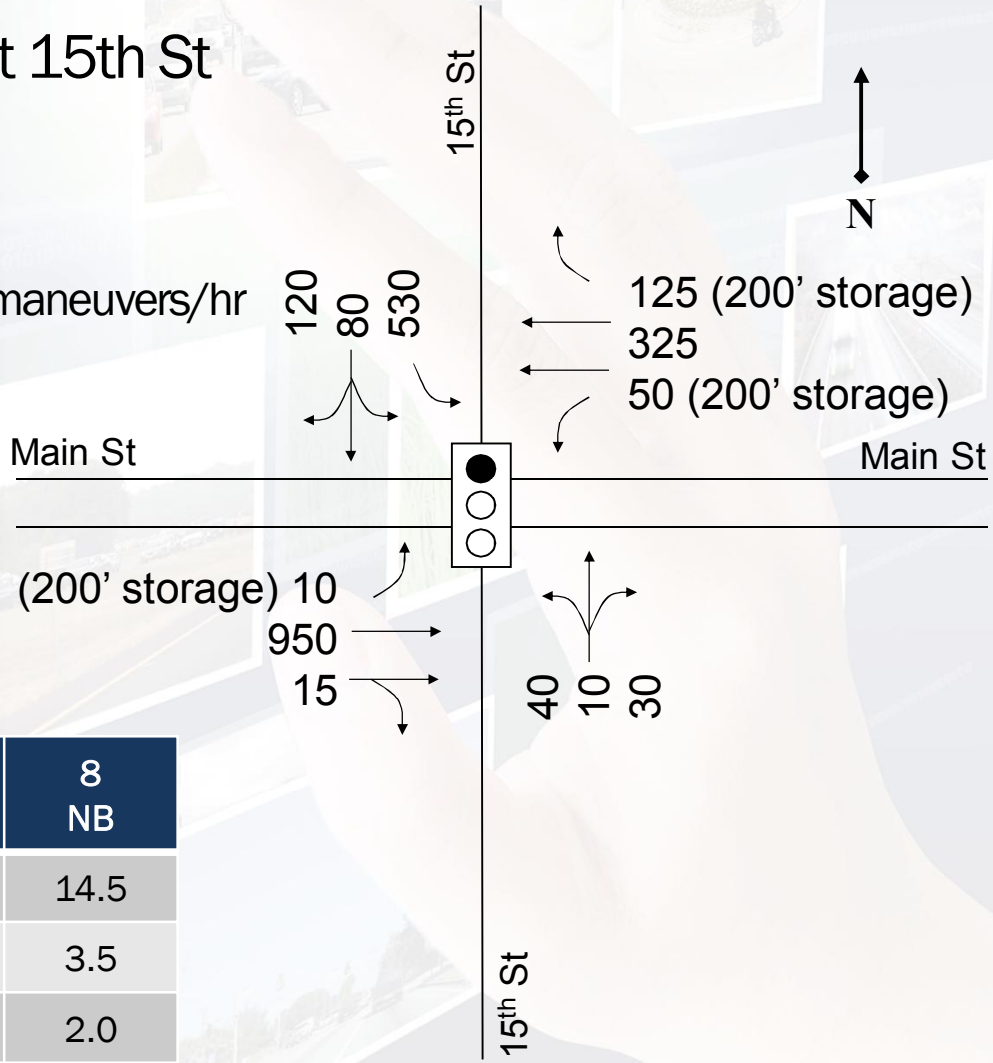
- Forward direction – eastbound
- 4-lane undivided roadway
- 25 MPH speed limit
- Upstream width EB/WB – 60 feet
- Segment default values
  - Cycle length: 120 sec
  - Minimum green: 4 sec
  - Yellow change: 3.5 sec
  - Red clearance: 2 sec
- Access Point
  - Volumes and geometry as shown
  - 17th Street southbound
  - PHF = 0.90



Urban Streets - Segments

Example #5 (cont): Main St at 15th St

- PHF – 0.90 for all movements
- 2% heavy vehicles for all movements
- EB and WB - 5 buses/hr
- On-street parking on WB approach – 10 maneuvers/hr
- 20 peds/hr crossing all approaches
- Arrival type 3
- Cycle length – 90 sec (pre-timed)
- Split phasing (NB lag)
- Uncoordinated intersection
- Field-measured phase times
- 7 sec walk-time, 11-sec ped clearance



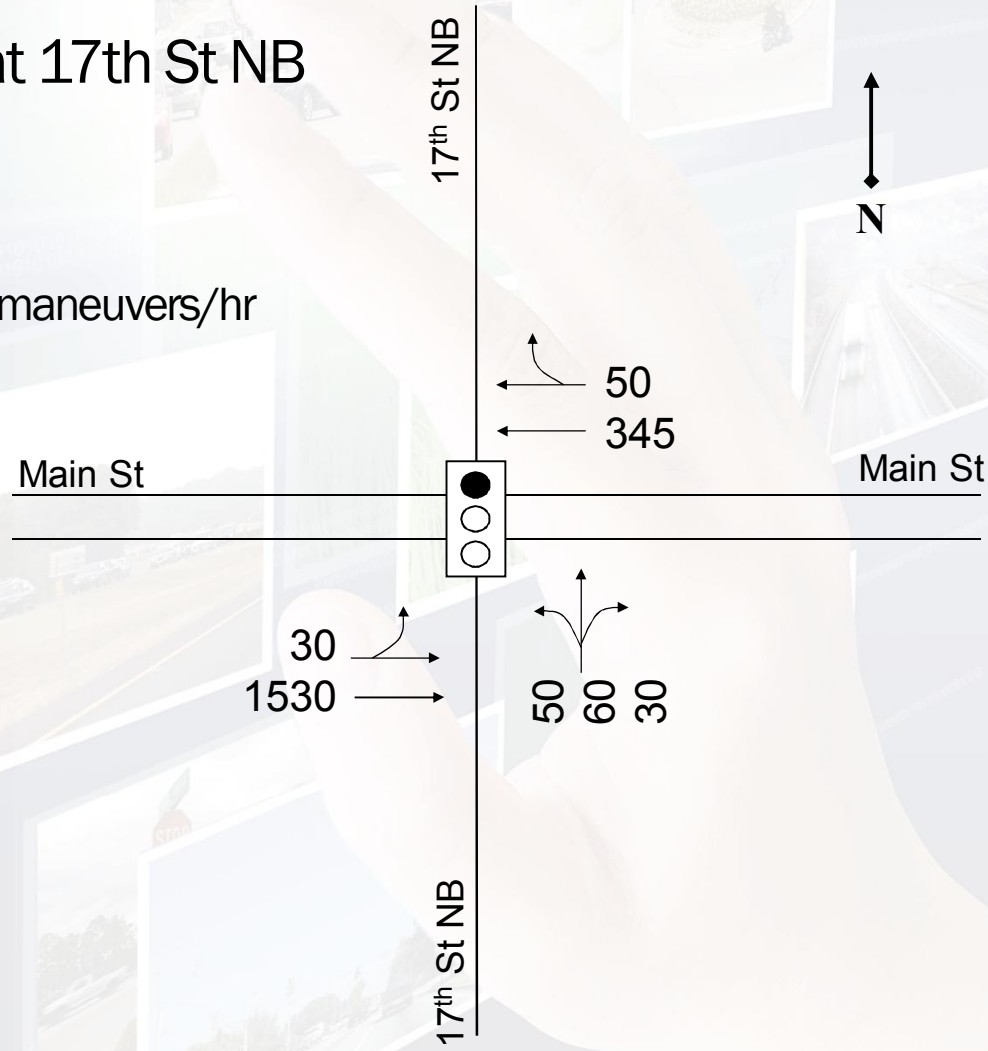
Phase Approach	2 EB	4 SB	6 WB	8 NB
Max. Green	29.5	29.5	29.5	14.5
Yellow	3.5	3.5	3.5	3.5
Red	2.0	2.0	2.0	2.0
Min. Green	4	4	4	4

Urban Streets - Segments

Example #5 (cont): Main St at 17th St NB

- PHF – 0.90 for all movements
- 2% heavy vehicles for all movements
- EB and WB - 5 buses/hr
- On-street parking on WB approach – 10 maneuvers/hr
- 20 peds/hr crossing all approaches
- Arrival type 3
- Cycle length – 90 sec (pre-timed)
- Uncoordinated intersection
- Field-measured phase times
- 7 sec walk-time, 11-sec ped clearance

Phase Approach	2 EB	4 NB	6 WB
Max. Green	62.5	16.5	62.5
Yellow	3.5	3.5	3.5
Red	2.0	2.0	2.0
Min. Green	4	4	4



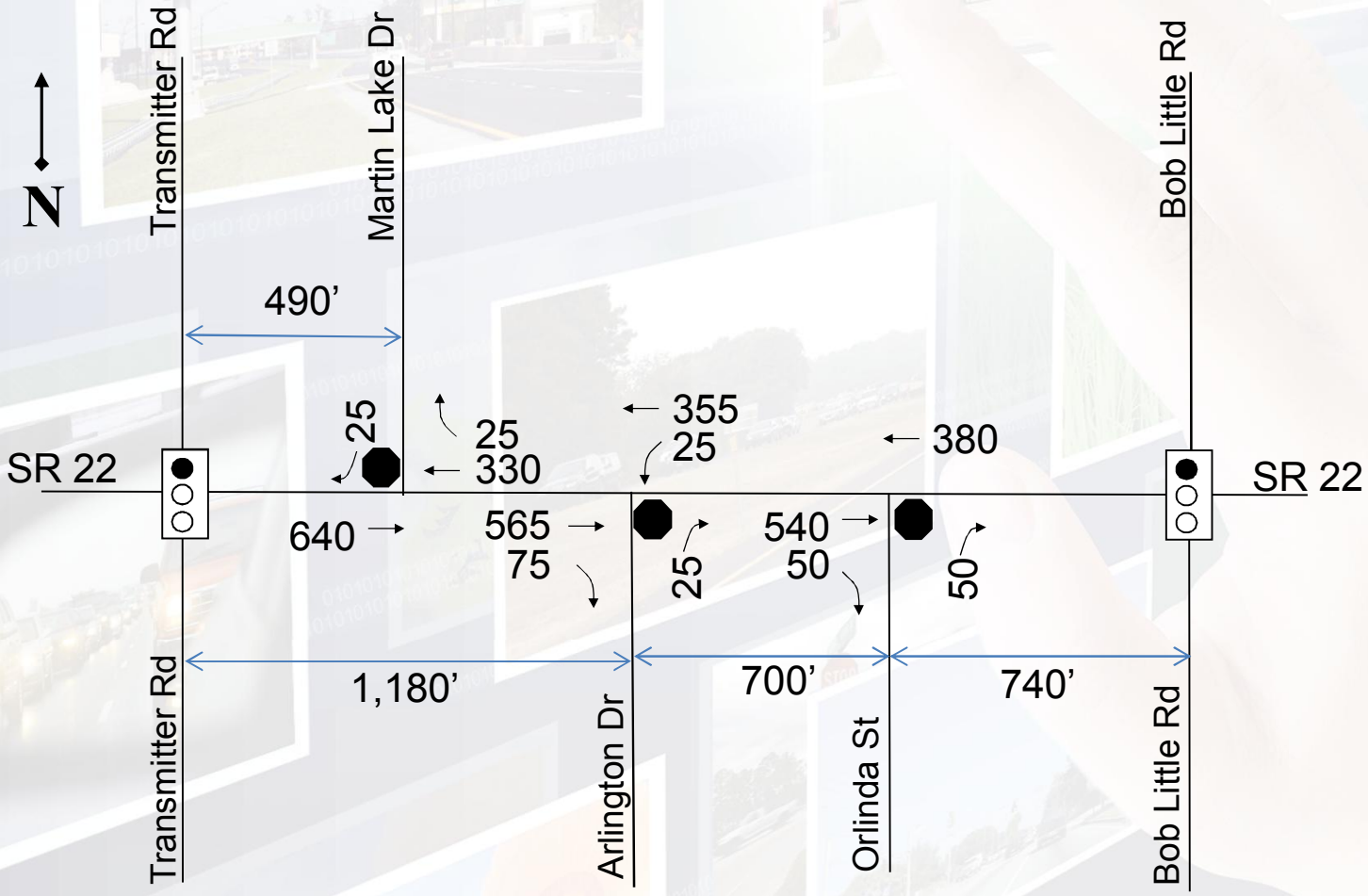
Urban Streets - Segments

Workshop #11: SR 22 between Transmitter Rd and Bob Little Rd (Springfield, FL)

- Forward direction – eastbound
- 2-lane undivided mainline roadway
- 45 MPH speed limit
- Upstream width EB/WB – 40 feet
- Segment default values:
  - Cycle length: 60 sec
  - Minimum green: 2 sec
  - Yellow change: 3 sec
  - Red clearance: 1 sec
- Access Points
  - Volumes and geometry as shown
  - Assume turn lanes with 200' storage from SR 22
  - PHF = 0.90

Urban Streets - Segments

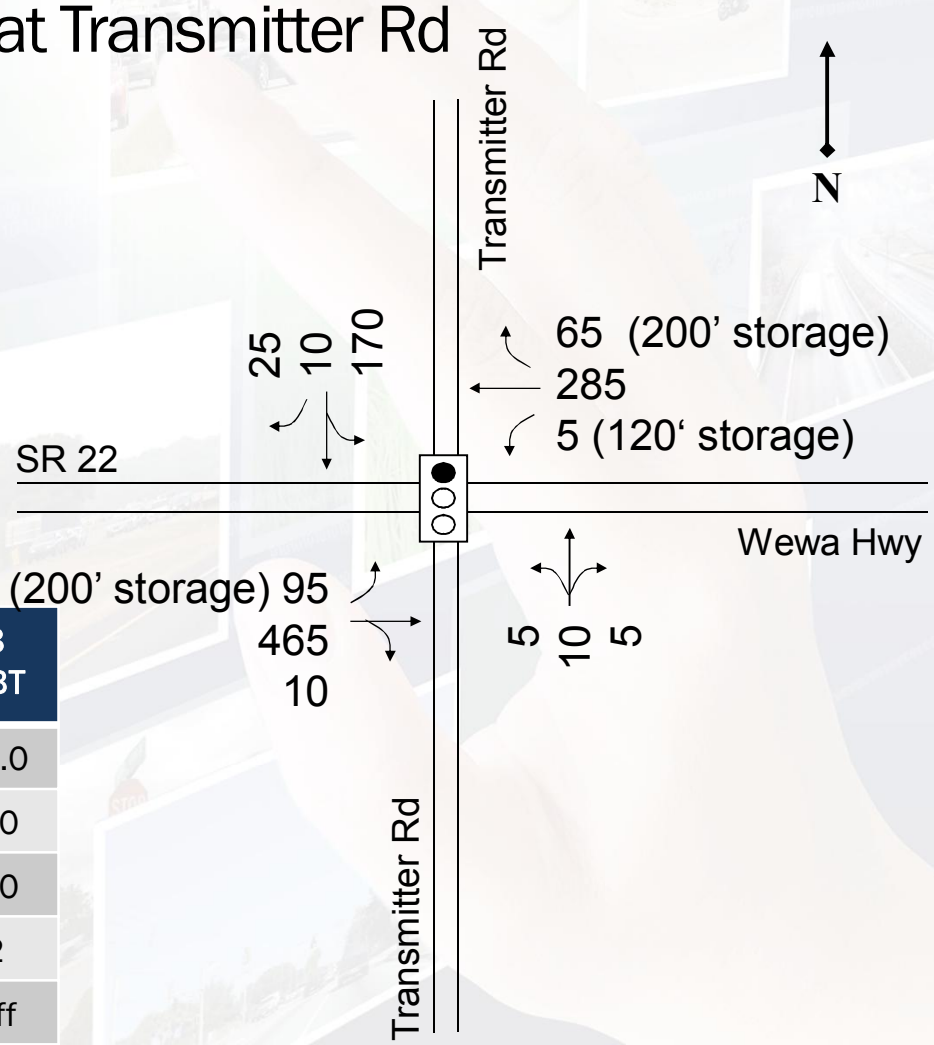
Workshop #11 (cont): SR 22 between Transmitter Rd and Bob Little Rd



Urban Streets - Segments

Workshop #11 (cont): SR 22 at Transmitter Rd

- 0.92 – PHF for all approaches
- 6% heavy vehicles on all movements
- Cycle length – 60 sec (actuated)
- Offset – 15 sec
- RT overlap & lag on Phase 7
- Field-measured phase times are used

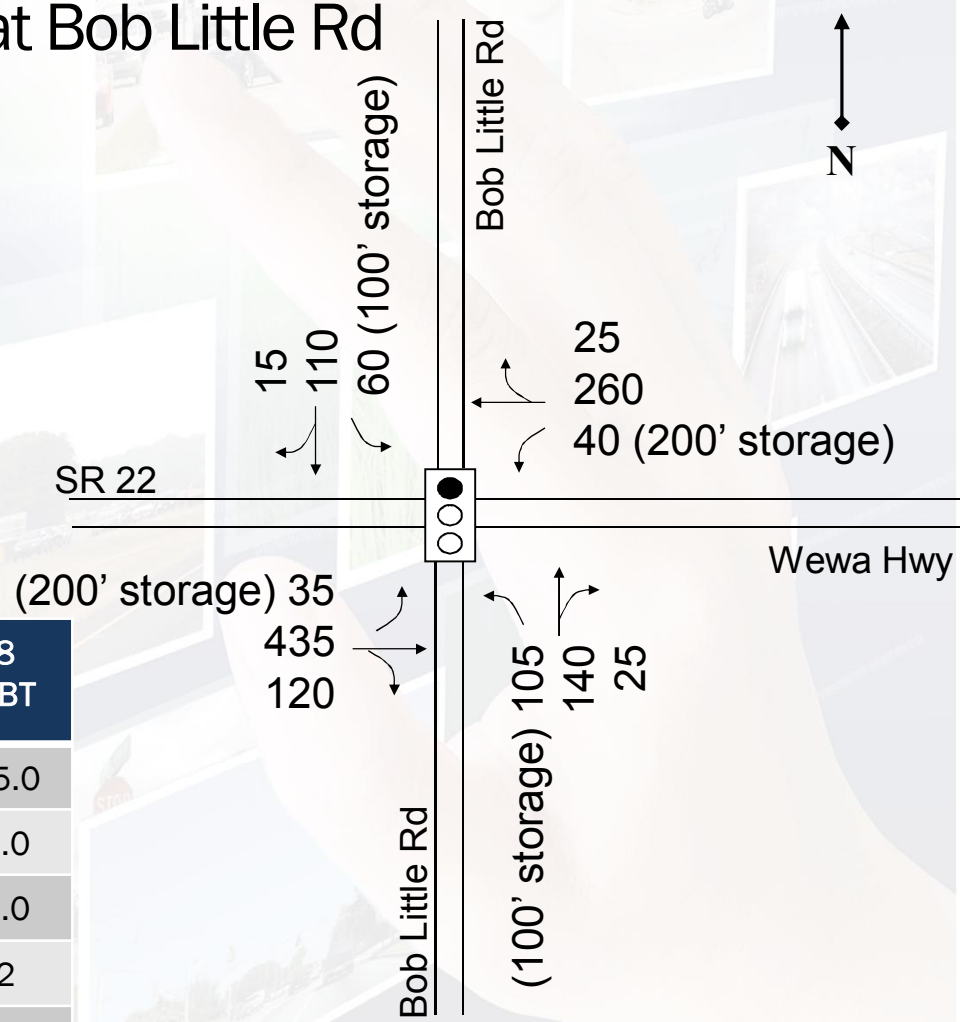


Phase Approach	2 EBT	4 SBT	6 WBT	7 SBL	8 NBT
Split	40.0	20.0	40.0	10.0	10.0
Yellow	3.0	3.0	3.0	3.0	3.0
Red	1.0	1.0	1.0	1.0	1.0
Min. Green	2	2	2	2	2
Recall	C-Min	Off	C-Min	Off	Off

Urban Streets - Segments

Workshop #11 (cont): SR 22 at Bob Little Rd

- 0.92 – PHF for all approaches
- 6% heavy vehicles on all movements
- Cycle length – 60 sec (actuated)
- Offset – 35 sec
- Lag phase: Phase 3
- Field-measured phase times are used



Phase Approach	2 EBT	3 NBL	4 SBT	6 WBT	8 NBT
Split	35.0	15.0	10.0	35.0	25.0
Yellow	3.0	3.0	3.0	3.0	3.0
Red	1.0	1.0	1.0	1.0	1.0
Min. Green	2	2	2	2	2
Recall	C-Min	Off	Off	C-Min	Off

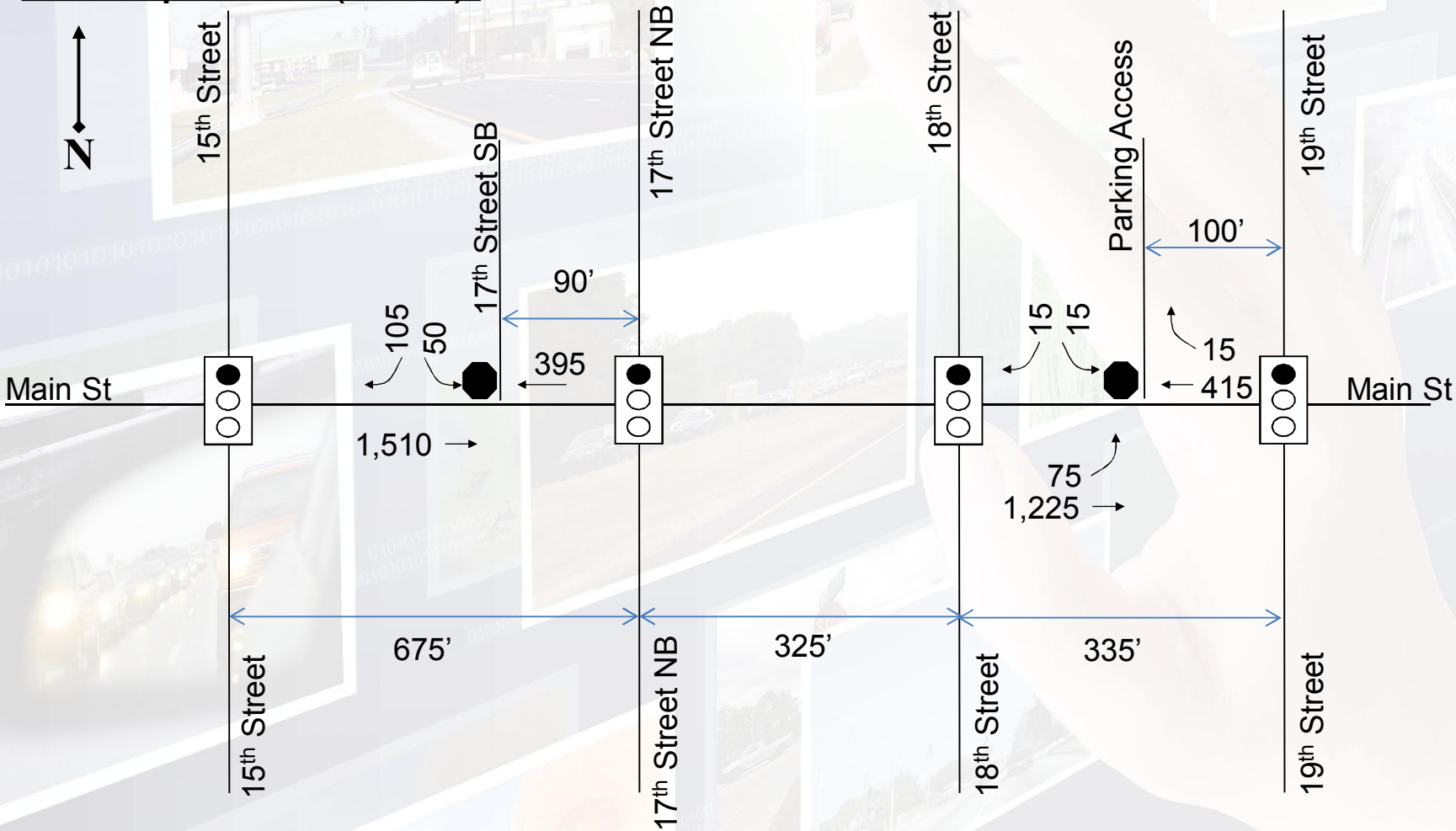
Urban Streets - Facilities

Example #6: Main St between 15th St and 19th St

- Forward direction – eastbound
- 4-lane undivided roadway
- 25 MPH speed limit
- Upstream width EB/WB – 60 feet
- Segment default values
  - Cycle length: 90 sec
  - Minimum green: 4 sec
  - Yellow change: 3.5 sec
  - Red clearance: 2 sec
- Access Points
  - 17th St SB (585' east of 15th St)
  - Parking Access (235' east of 18th St)
  - PHF = 0.90
- Field-measured phase times

Urban Streets - Facilities

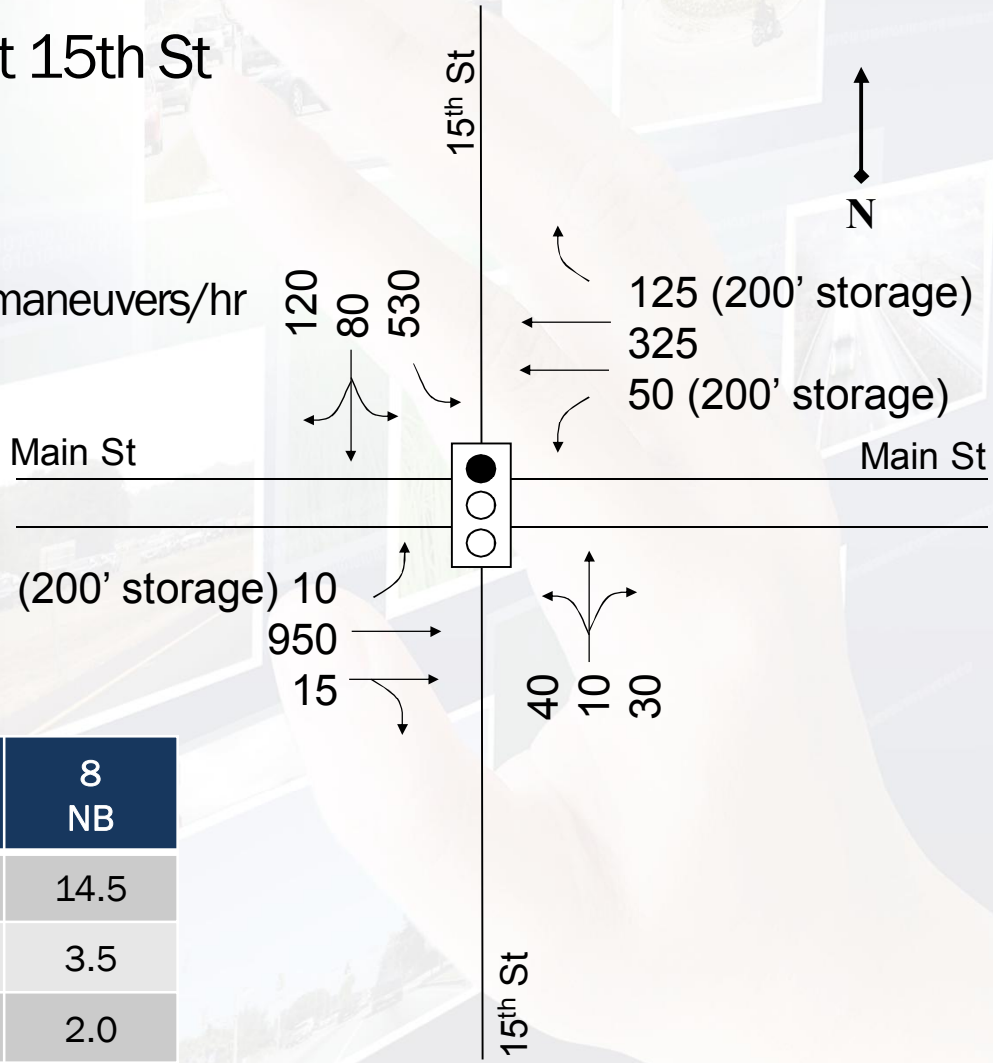
Example #6 (cont): Main St between 15th St and 19th St



Urban Streets - Facilities

Example #6 (cont): Main St at 15th St

- PHF – 0.90 for all movements
- 2% heavy vehicles for all movements
- EB and WB - 5 buses/hr
- On-street parking on WB approach – 10 maneuvers/hr
- 20 peds/hr crossing all approaches
- Arrival type 3
- Cycle length – 90 sec (pre-timed)
- Split phasing (NB lag)
- Uncoordinated intersection
- Field-measured phase times
- 7 sec walk-time, 11-sec ped clearance



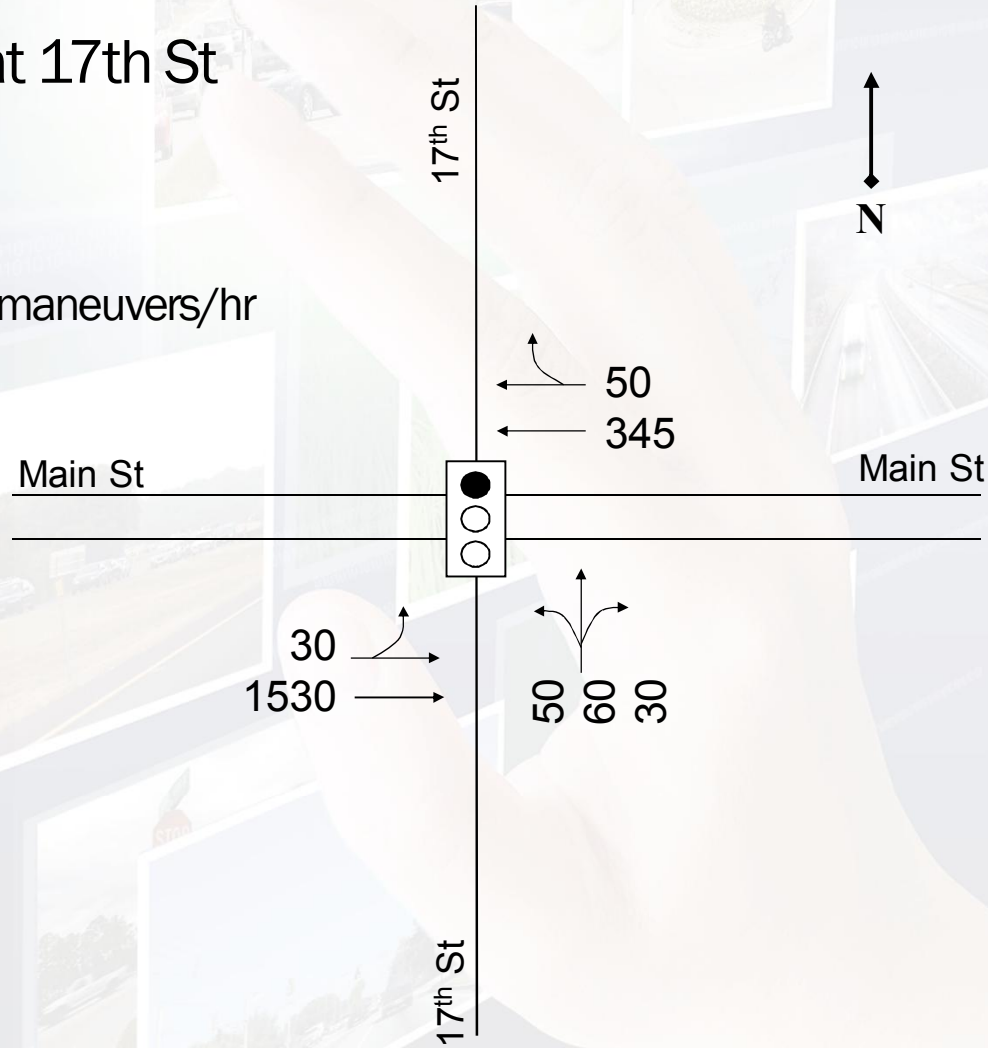
Phase Approach	2 EB	4 SB	6 WB	8 NB
Max. Green	29.5	29.5	29.5	14.5
Yellow	3.5	3.5	3.5	3.5
Red	2.0	2.0	2.0	2.0
Min. Green	4	4	4	4

Urban Streets - Facilities

Example #6 (cont): Main St at 17th St

- PHF – 0.90 for all movements
- 2% heavy vehicles for all movements
- EB and WB - 5 buses/hr
- On-street parking on WB approach – 10 maneuvers/hr
- 20 peds/hr crossing all approaches
- Arrival type 3
- Cycle length – 90 sec (pre-timed)
- Uncoordinated intersection
- Field-measured phase times
- 7 sec walk-time, 11-sec ped clearance

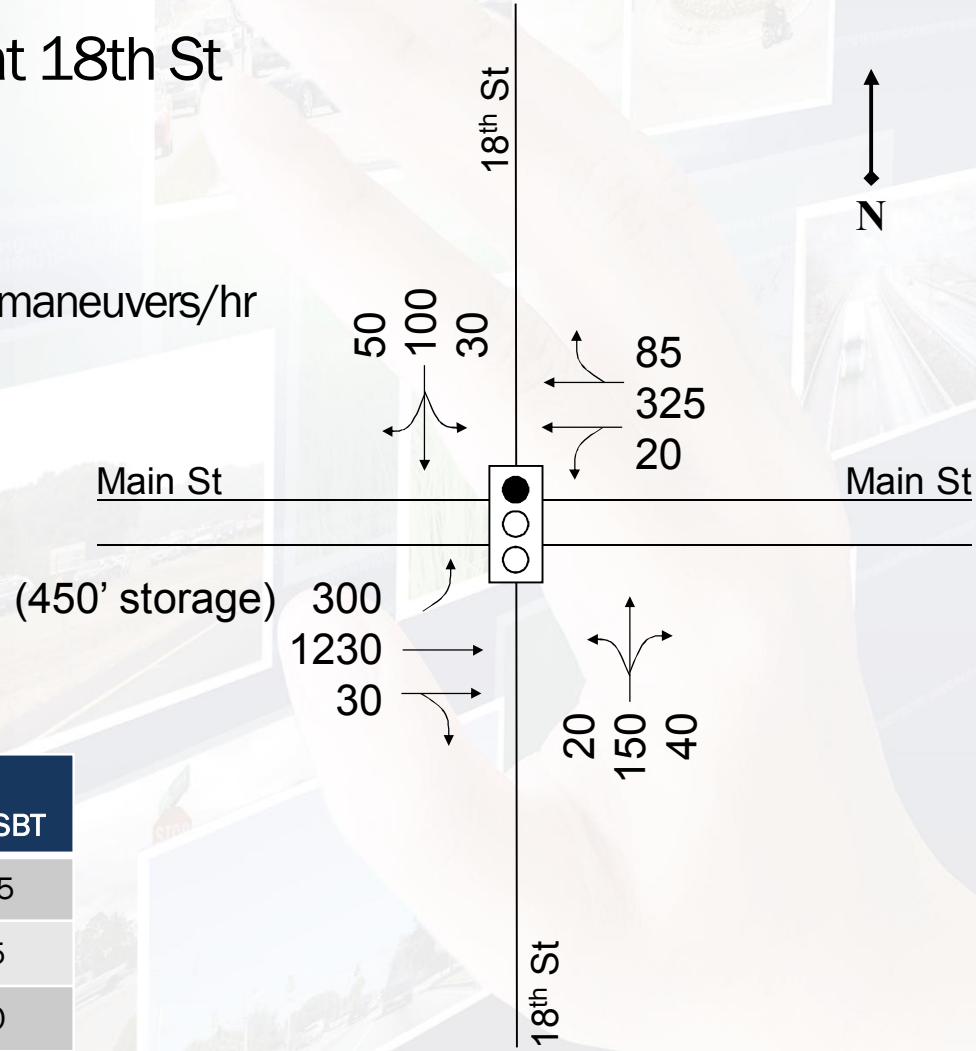
Phase Approach	2 EB	4 NB	6 WB
Max. Green	62.5	16.5	62.5
Yellow	3.5	3.5	3.5
Red	2.0	2.0	2.0
Min. Green	4	4	4



Urban Streets - Facilities

Example #6 (cont): Main St at 18th St

- PHF – 0.90 for all movements
- 2% heavy vehicles for all movements
- EB and WB - 5 buses/hr
- On-street parking on WB approach – 10 maneuvers/hr
- 40 peds/hr crossing all approaches
- Arrival type 3
- Cycle length – 120 sec (pre-timed)
- Split phasing (NB lag)
- Uncoordinated intersection
- Field-measured phase times
- 7 sec walk-time, 11-sec ped clearance

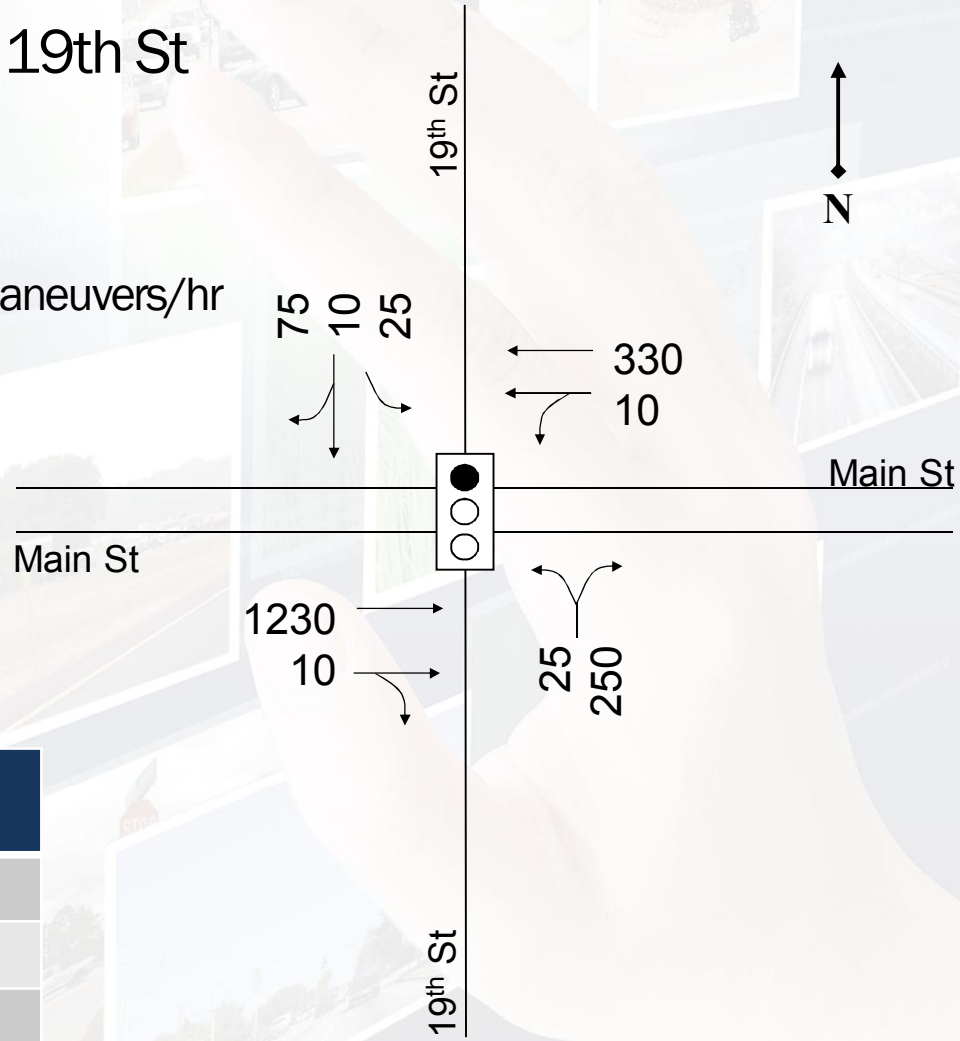


Phase Approach	2 EBT	5 EBL	6 WBT	8 NBT/SBT
Max. Green	54.5	18.5	30.5	24.5
Yellow	3.5	3.5	3.5	3.5
Red	2.0	2.0	2.0	2.0
Min. Green	4	4	4	4

Urban Streets - Facilities

Example #6 (cont): Main St at 19th St

- PHF – 0.90 for all movements
- 2% heavy vehicles for all movements
- EB and WB – 5 buses/hr
- On-street parking on WB approach – 10 maneuvers/hr
- 10 peds/hr crossing all approaches
- Arrival type 3
- Cycle – 90 sec (pre-timed)
- Split phasing (SB lag)
- Uncoordinated intersection
- Field-measured phase times
- 7 sec walk-time, 11-sec ped clearance



Phase Approach	2 EB	4 SB	6 WB	8 NB
Max. Green	32	18	32	23
Yellow	3.5	3.5	3.5	3.5
Red	2.0	2.0	2.0	2.0
Min. Green	4	4	4	4

Urban Streets - Facilities

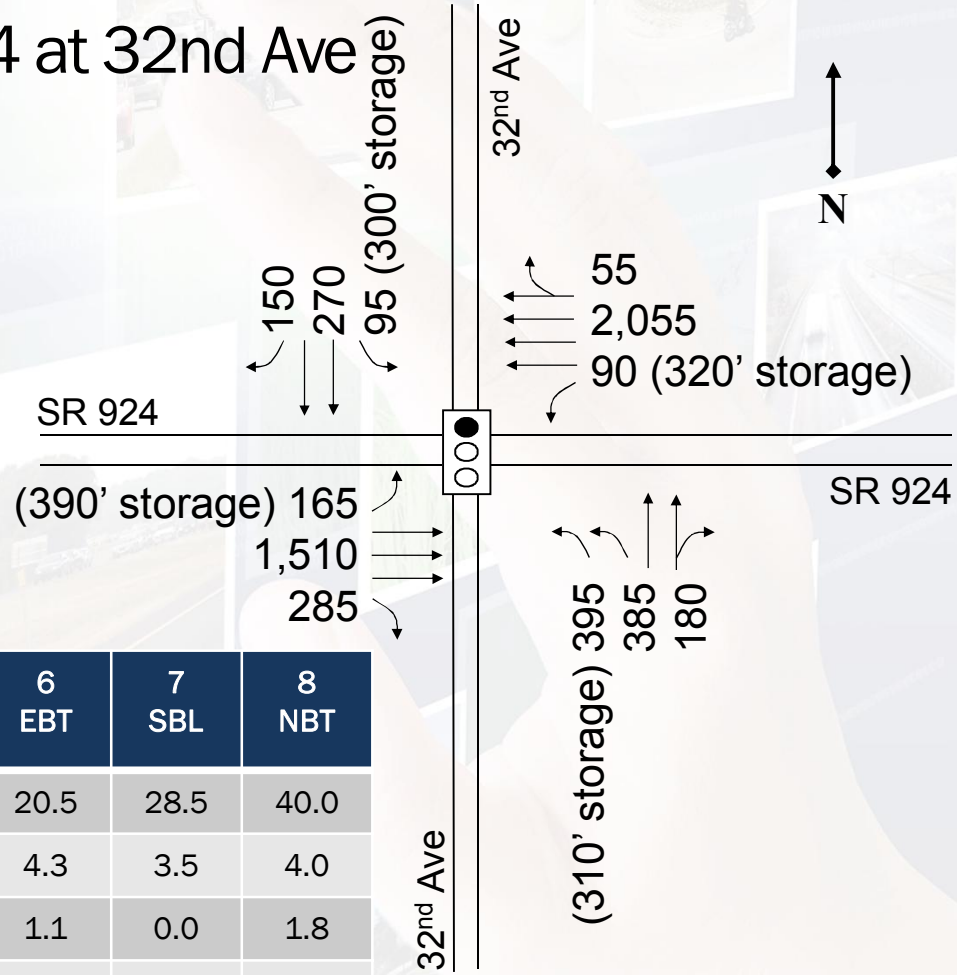
<u>Workshop #12:</u> SR 924 (Gratigny Pkwy) between 32nd Ave and 17th Ave (Miami, FL)

- 8-lane divided roadway with 30' median
- Upstream width EB/WB – 100 feet
- Cycle length = 100 sec for all intersections

Urban Streets - Facilities

Workshop #12 (cont): SR 924 at 32nd Ave

- 0.92 – PHF for all approaches
- 5% HV on mainline approaches
- 14% HV on minor approaches
- 40 MPH speed limit on all approaches
- Cycle length – 100 sec (actuated)
- Offset – 28 sec
- EB, WB, & SB LT phases protected + permissive
  - NB LT phase protected only

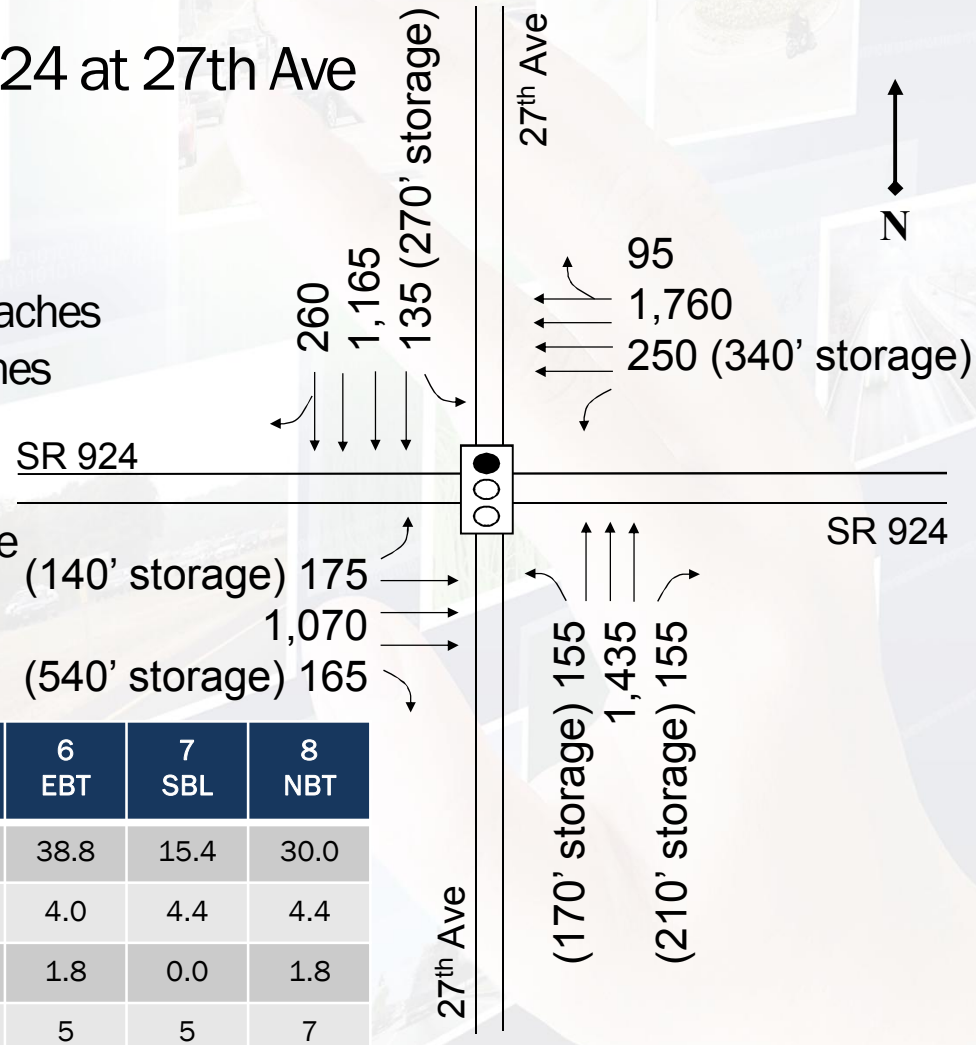


Phase Approach	1 EBL	2 WBT	3 NBL	4 SBT	5 WBL	6 EBT	7 SBL	8 NBT
Split	11.0	20.5	28.5	40.0	11.0	20.5	28.5	40.0
Yellow	5.0	4.3	3.5	4.0	5.0	4.3	3.5	4.0
Red	0.0	1.1	0.0	1.8	0.0	1.1	0.0	1.8
Min. Green	5	5	5	7	5	5	5	7
Recall	Off	C-Min	Off	Off	Off	C-Min	Off	Off

Urban Streets - Facilities

Workshop #12 (cont): SR 924 at 27th Ave

- 0.96 – PHF for all approaches
- 5% HV on mainline approaches
- 7% HV on minor approaches
- 40 MPH speed limit on mainline approaches
- 45 MPH speed limit on minor approaches
- Cycle length – 100 sec (actuated)
- Offset – 50 sec
- All LT phases are protected + permissive

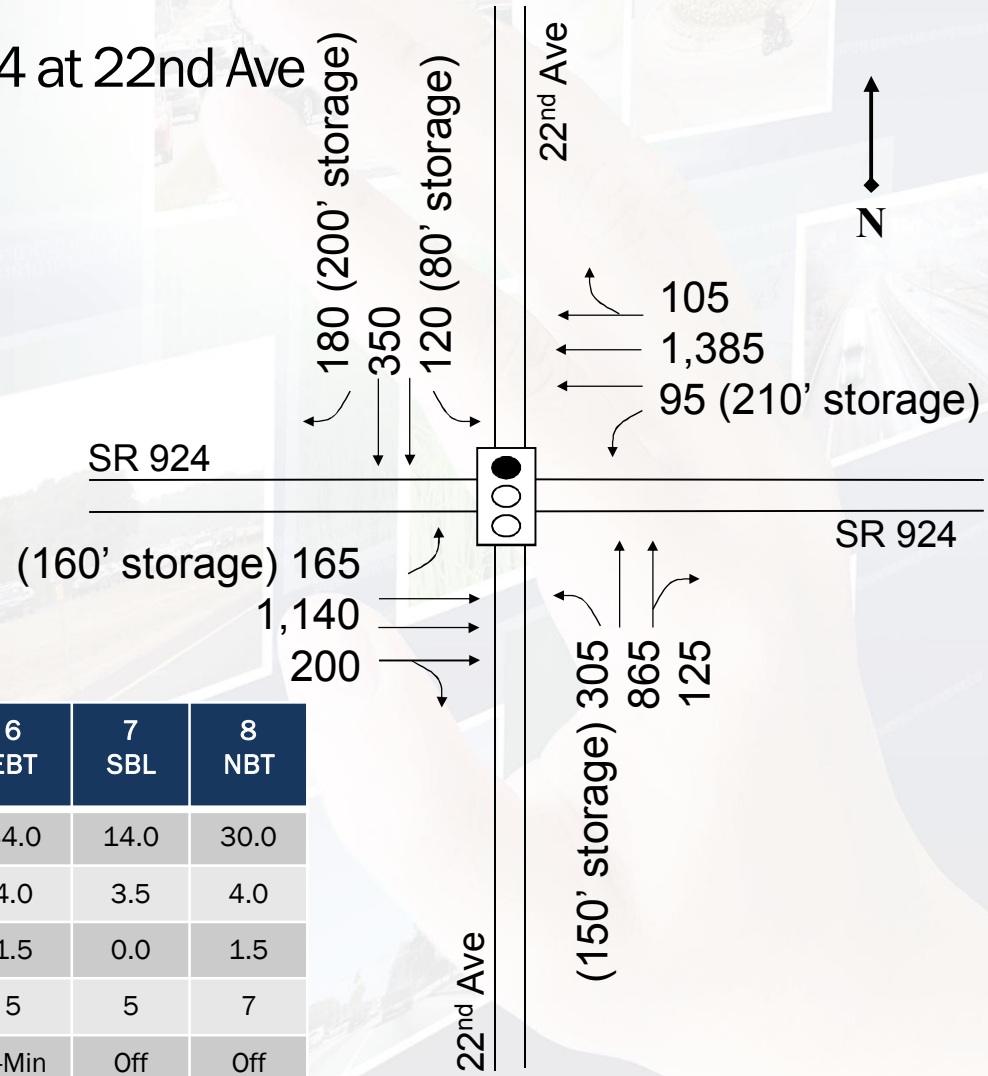


Phase Approach	1 EBL	2 WBT	3 NBL	4 SBT	5 WBL	6 EBT	7 SBL	8 NBT
Split	15.8	38.8	15.4	30.0	15.8	38.8	15.4	30.0
Yellow	4.8	4.0	4.4	4.4	4.8	4.0	4.4	4.4
Red	0.0	1.8	0.0	1.8	0.0	1.8	0.0	1.8
Min. Green	5	5	5	7	5	5	5	7
Recall	Off	C-Min	Off	Off	Off	C-Min	Off	Off

Urban Streets - Facilities

Workshop #12 (cont): SR 924 at 22nd Ave

- 0.93 – PHF for all approaches
- 3% HV on mainline approaches
- 2% HV on minor approaches
- 40 MPH speed limit on all approaches
- Cycle length – 100 sec (actuated)
- Offset – 99 sec
- N/S LT phases protected + permissive
  - E/W LT phases protected only

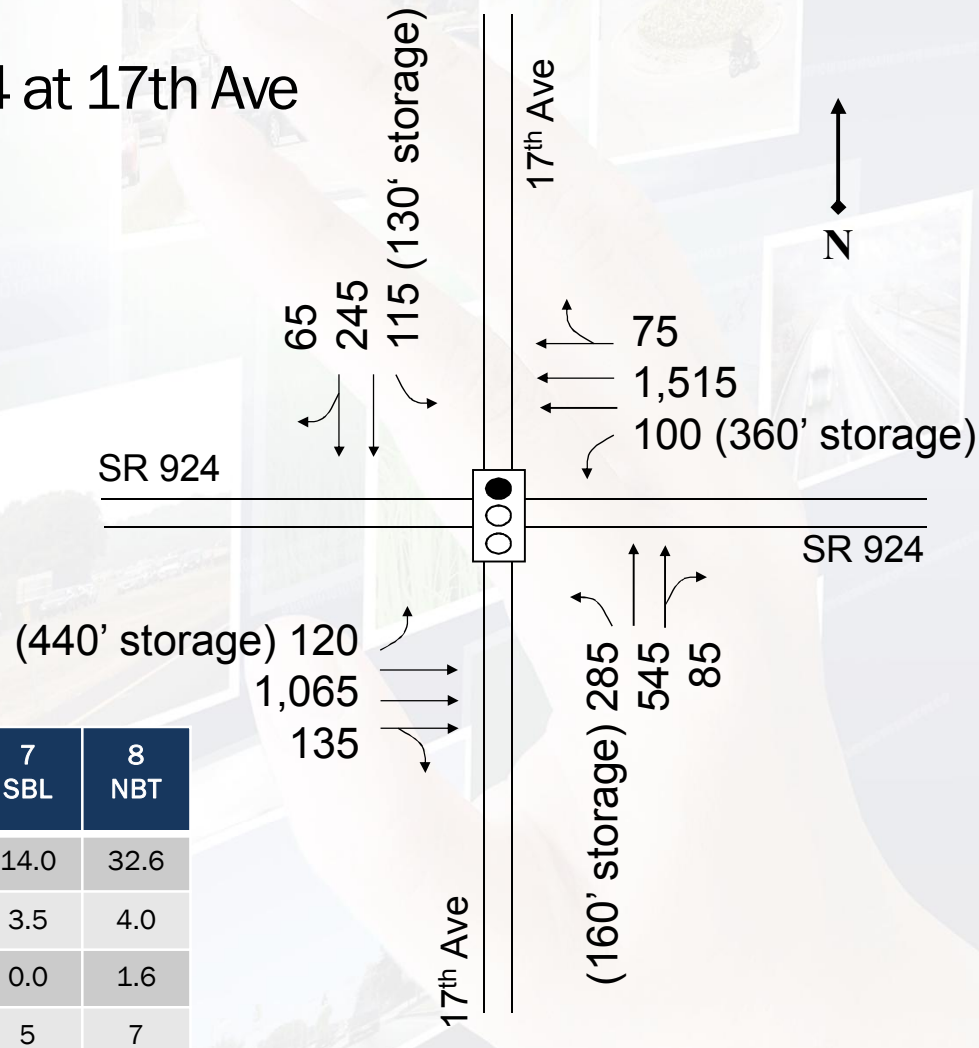


Phase Approach	1 EBL	2 WBT	3 NBL	4 SBT	5 WBL	6 EBT	7 SBL	8 NBT
Split	12.0	44.0	14.0	30.0	12.0	44.0	14.0	30.0
Yellow	3.5	4.0	3.5	4.0	3.5	4.0	3.5	4.0
Red	0.0	1.5	0.0	1.5	0.0	1.5	0.0	1.5
Min. Green	5	5	5	7	5	5	5	7
Recall	Off	C-Min	Off	Off	Off	C-Min	Off	Off

Urban Streets - Facilities

Workshop #12 (cont): SR 924 at 17th Ave

- 0.88 – PHF for all approaches
- 3% heavy vehicles on all movements
- 40 MPH speed limit on all approaches
- Cycle length – 100 sec (actuated)
- Offset – 68 sec
- All LT phases protected + permissive



Phase Approach	1 WBL	2 EBT	3 NBL	4 SBT	5 EBL	6 WBT	7 SBL	8 NBT
Split	11.0	42.4	14.0	32.6	11.0	42.4	14.0	32.6
Yellow	3.5	4.0	3.5	4.0	3.5	4.0	3.5	4.0
Red	0.0	1.1	0.0	1.6	0.0	1.1	0.0	1.6
Min. Green	5	5	5	7	5	5	5	7
Recall	Off	C-Min	Off	Off	Off	C-Min	Off	Off

Basic Freeway Segments

Example #7: I-75 NB from CR 470 to FL-48 (Bushnell, FL)

- Select "Operations" Analysis, utilize Planning Data
  - AADT – 37,700 veh/day
  - K – 10%
  - D – 56%
- PHF – 0.88
- 2-lane freeway
- Level terrain
- 20% trucks and buses
- 75.4 MPH base free-flow speed
  - Lane width – 12.0 ft
  - Right-side lateral clearance – 6.0 ft
  - Total ramp density – 4 ramps/6 mi = 0.66 ramps/mi

Basic Freeway Segments

Workshop #13: I-4 EB from CR 557 to US-27 (Haines City, FL)

- Select "Operations" Analysis, utilize Planning Data
  - AADT – 77,500 veh/day
  - K – 9% (FDOT "standard K")
  - D – 52%
- 3-lane freeway
- PHF – 0.92
- Level terrain
- 14% trucks and buses
- 75.4 MPH base free-flow speed
  - Lane width – 11.0 ft
  - Right-side lateral clearance – 3.0 ft
  - Total ramp density – 0 ramps/6 mi = 0.0 ramps/mi

Basic Freeway Segments

Workshop #14: I-75 NB from Griffin Rd to Royal Palm Blvd (Hollywood, FL)

- Select "Operations" Analysis, use Planning Data
  - AADT – 149,500 veh/day
  - K – 9% (FDOT "standard K")
  - D – 54%
- PHF – 0.94
- 4-lane freeway
- Level terrain
- 6% trucks and buses
- Primarily commuter traffic
- 75.4 MPH base free-flow speed
  - Lane width - 12.0 ft
  - Right-side lateral clearance – 6.0 ft
  - Total ramp density – 6 ramps/6 mi = 1.0 ramp/mi

Basic Freeway Segments

Workshop #15A: I-75 NB from CR 673 to FL-48 (Bushnell, FL)

- Select "Operations" analysis, but don't check "Planning Data"
- Volume – 1,950 veh/hr
- PHF – 0.88
- Level terrain
- 2-lane freeway
- 20% trucks and buses
- 75.4 MPH base free-flow speed
  - Lane width – 11.0 ft
  - Right-side lateral clearance – 6.0 ft
  - Total ramp density – 4 ramps/6 mi = 0.66 ramps/mi

Basic Freeway Segments

Workshop #15B: I-75 NB from CR 673 to FL-48 (Bushnell, FL)

- Rather than Operations, select Design as the analysis type
  - Check box to enable Planning Data input fields
- Input same basic characteristics as Workshop #15A

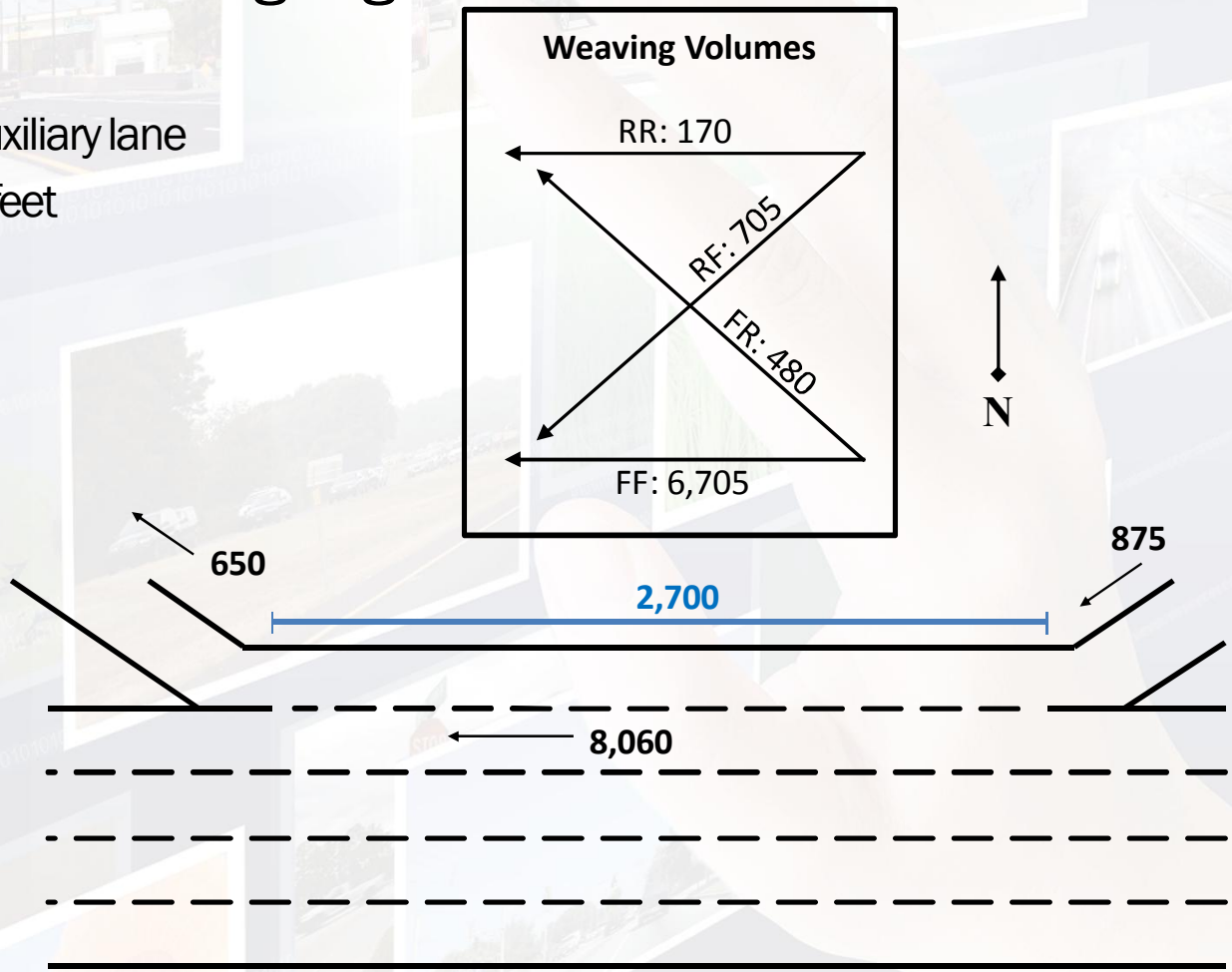
How many lanes are required for LOS C?

- Assume:
  - AADT = 76,000 veh/day
  - K = 10%
  - D = 55%

Weaving Segments

Example #8: I-95 NB weaving segment at 10th St (Deerfield Beach, FL)

- 4-lane mainline, 1-lane auxiliary lane
- Segment length – 2,700 feet
- 70 mph FFS
- 55 mph ramp FFS
- 15 mph minimum speed
- PHF – 0.92
- 7% trucks and buses
- 1.3 interchanges/mile

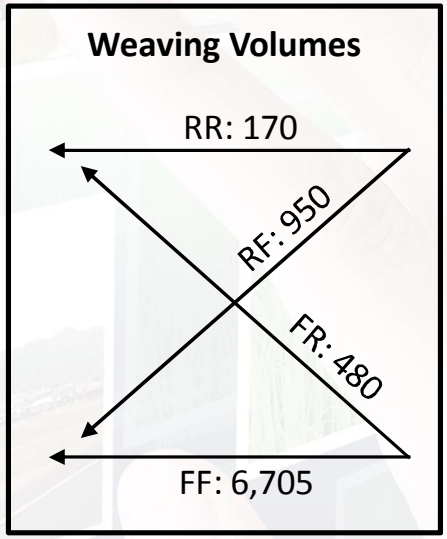


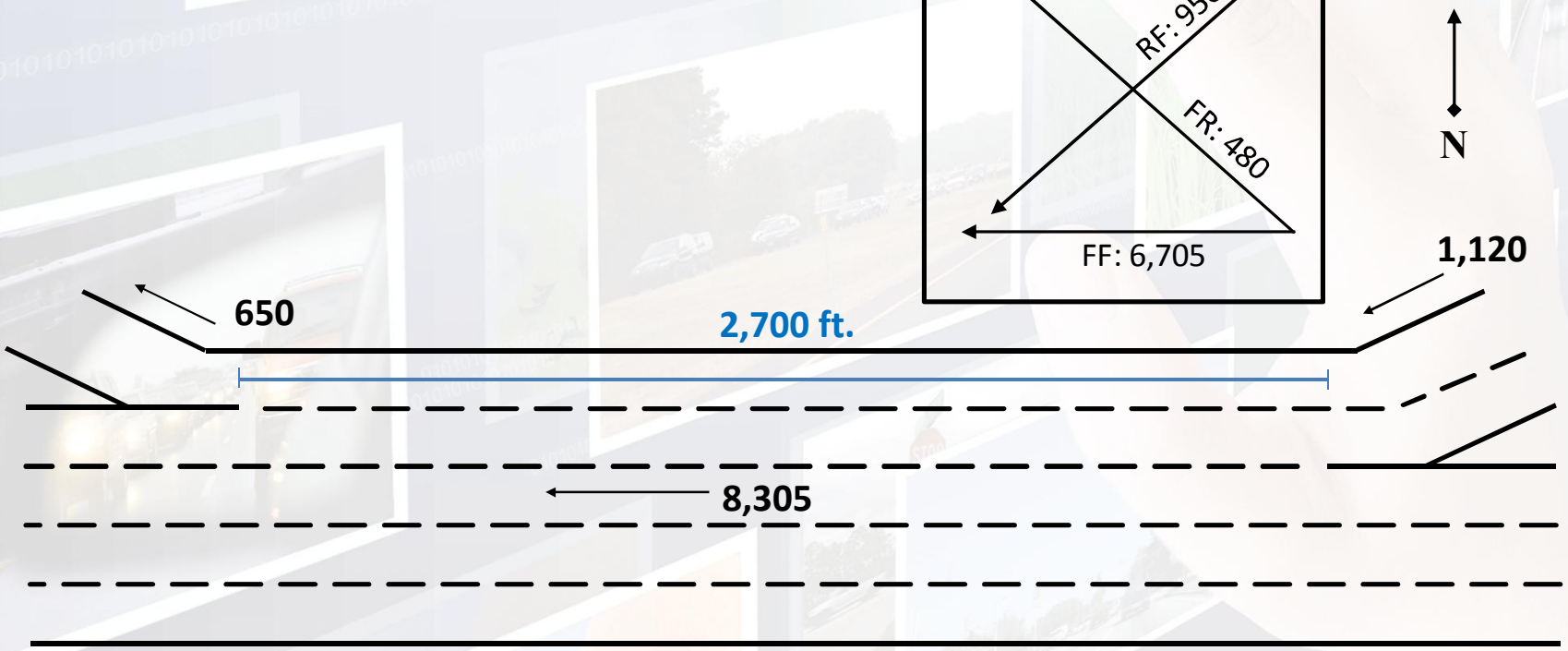
I-95 Weaving Segment

Weaving Segments

Workshop #16: Sample Weaving Segment

- Add second on-ramp lane to Example #8
- Increased ramp to freeway (RF) volume

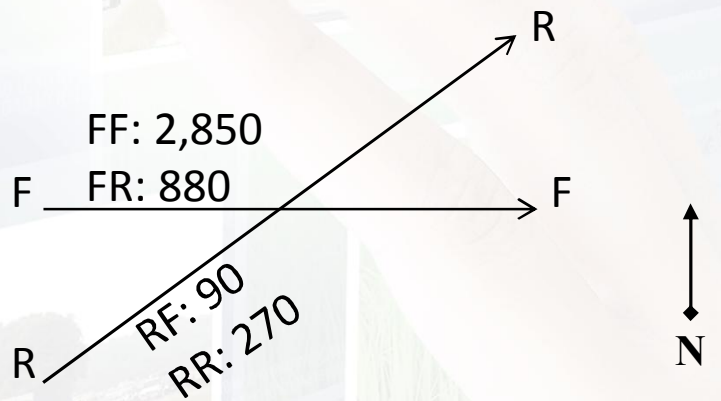


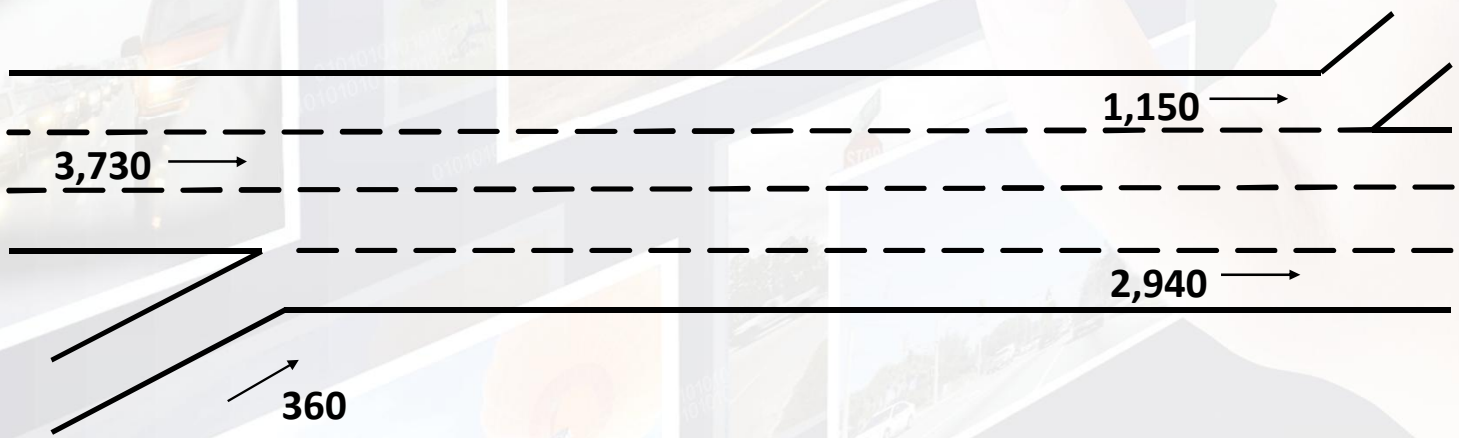


Weaving Segments

Workshop #17: Sample Weaving Segment

- 3-lane mainline, 1-lane ramps
- Segment length – 2,000 feet
- 70 mph free-flow speed
- 15 mph minimum speed
- PHF – 0.90
- 5% trucks and buses
- 1.0 interchange /mile

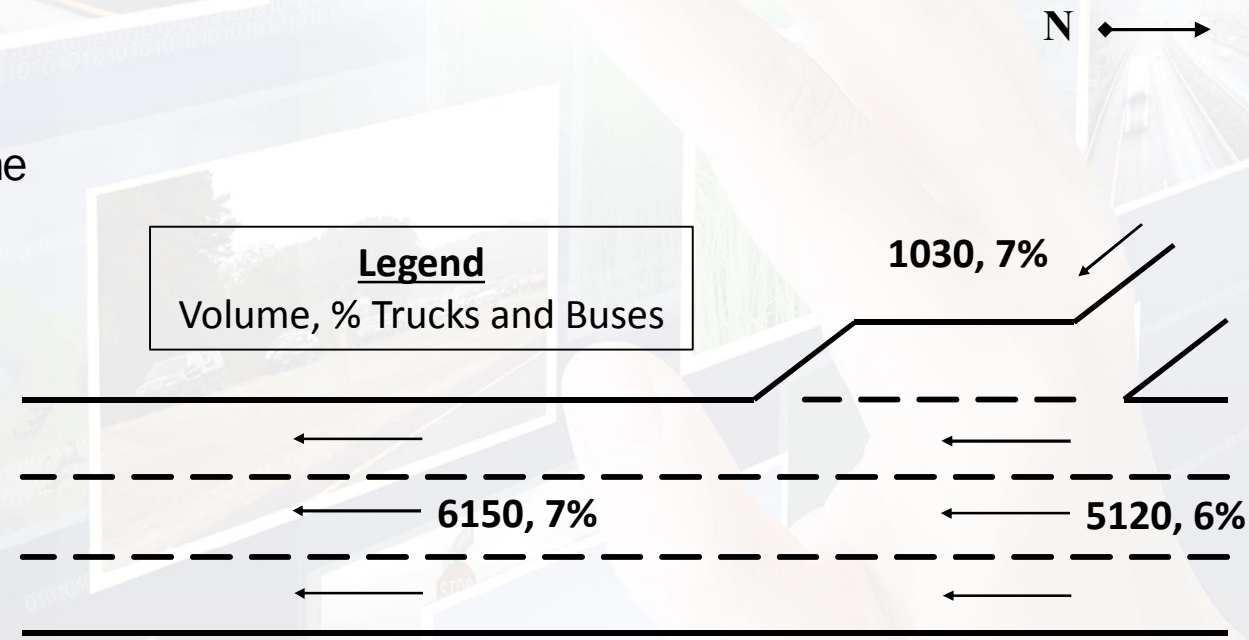




Merge/Diverge Segments

Example #9: I-75 SB/Griffin Road merge (Hollywood, FL)

- 3-lane mainline, 1-lane ramp
- 70 mph mainline FFS
- 40 mph ramp FFS
- 1130 ft. acceleration lane
- PHF – 0.94
- 1% grade for 0.5 miles



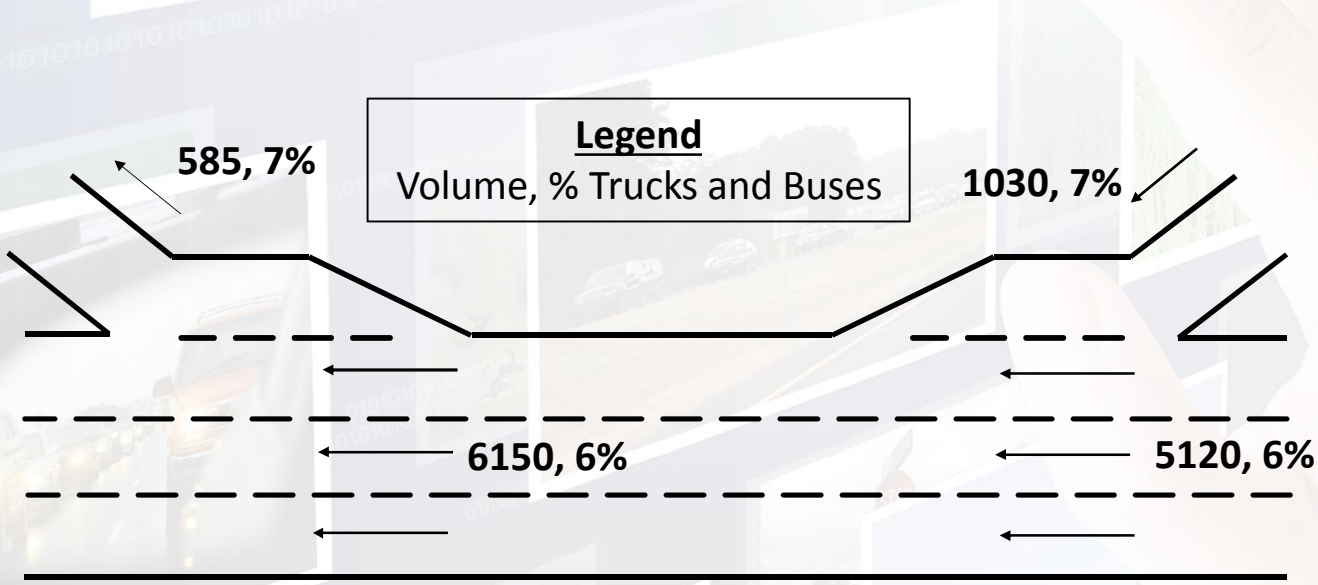
I-75 / Griffin Road Merge

Merge/Diverge Segments

Workshop #18: I-75 SB merge

(Hollywood, FL)

- Now, take into account the downstream off-ramp (6,800 ft. away)



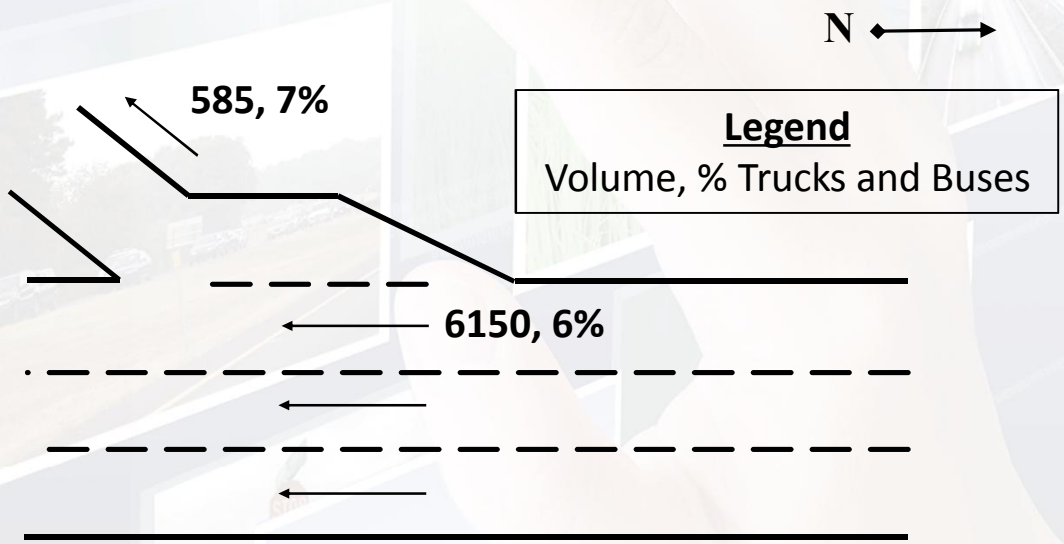
I-75 / Sheridan Street Diverge

I-75 / Griffin Road Merge

Merge/Diverge Segments

Workshop #19: I-75 SB /Sheridan Street diverge (Hollywood, FL)

- 3-lane mainline, 1-lane ramp
- 70 mph mainline FFS
- 40 mph ramp FFS
- 480 ft. deceleration lane
- PHF – 0.94
- Level terrain

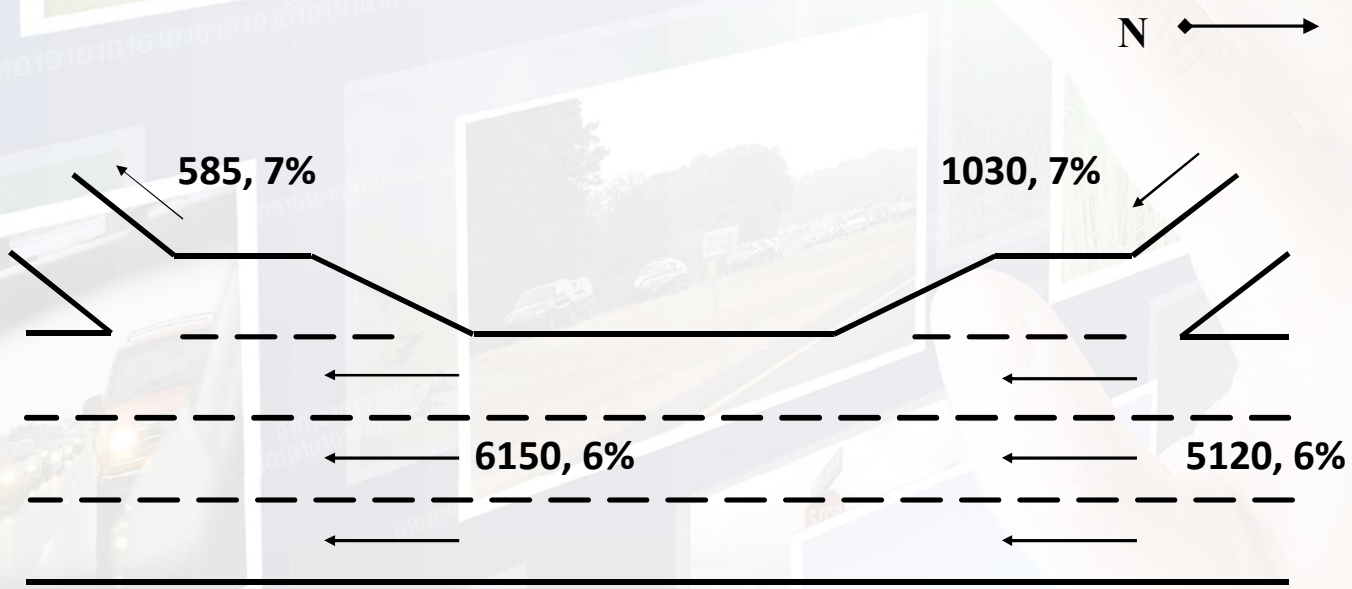


I-75 / Sheridan Street Diverge

Merge/Diverge Segments

Workshop #20: I-75 SB/Sheridan Street diverge (Hollywood, FL)

- Now, take into account the upstream on-ramp (2,000 ft. away)



I-75 / Sheridan Street diverge

I-75 / Griffin Road merge

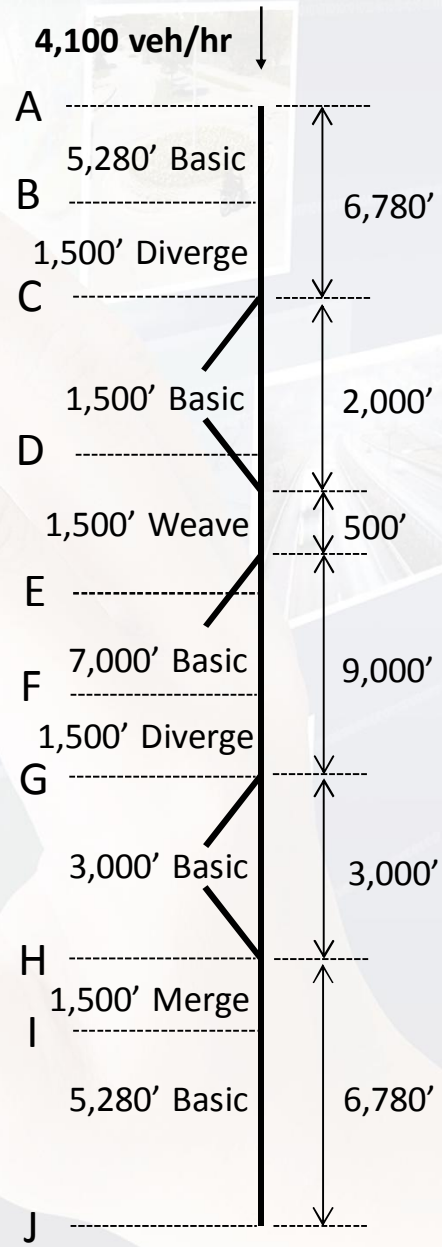
Freeway Facilities

Example #10: I-95 SB (Jacksonville, FL)

- 3-lane freeway
- Level terrain
- 70 mph freeway FFS
- 40 mph ramp FFS
- 10% trucks

N

Segment	Name	Type	Length (ft.)	Mainline Volume	Ramp Volume	Acc / Dec Length (ft.)
1	A-B	Basic	5,280	4,100	-	-
2	B-C	Off-Ramp	1,500	4,100	1,700	850
3	C-D	Basic	1,500	2,400	-	-
4	D-E	Weaving	1,500	2,600	On: 200 Off: 400	-
5	E-F	Basic	7,000	2,200	-	-
6	F-G	Off-Ramp	1,500	2,200	500	600
7	G-H	Basic	3,000	1,700	-	-
8	H-I	On-Ramp	1,500	2,600	900	600
9	I-J	Basic	5,280	2,600	-	-

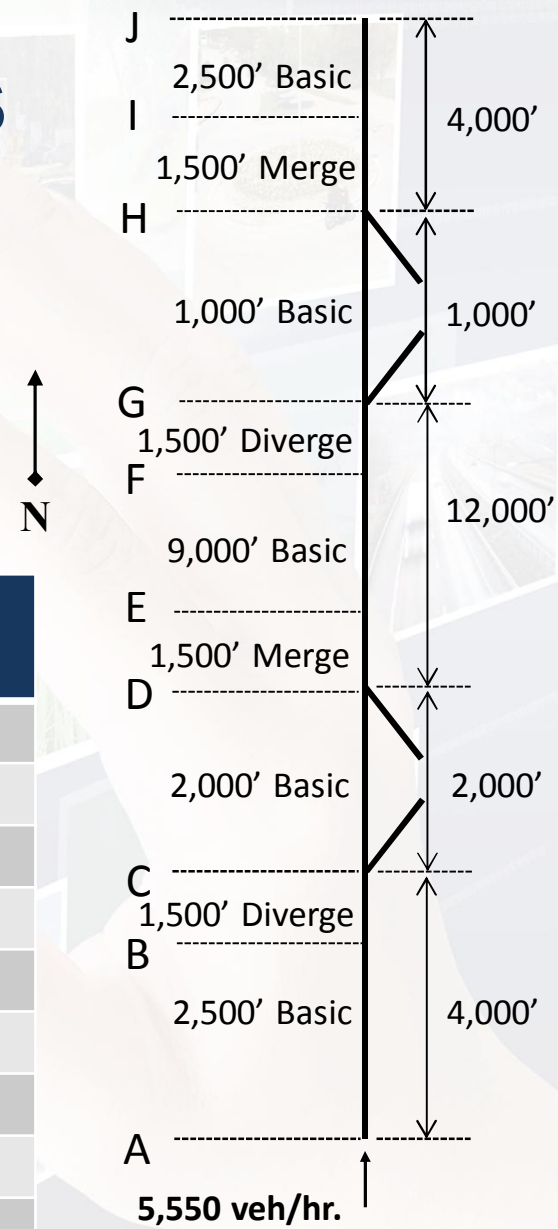


Freeway Facilities

Workshop #21: NB I-275 (Tampa, FL)

- 3-lane freeway
- Level terrain
- 75 mph freeway FFS
- 40 mph ramp FFS
- 8% trucks on mainline
- 3% trucks on ramps

Segment	Name	Type	Length (ft.)	Mainline Volume	Ramp Volume	Acc / Dec Length (ft.)
1	A-B	Basic	2,500	5,550	-	-
2	B-C	Off-Ramp	1,500	5,550	550	450
3	C-D	Basic	2,000	5,000	-	-
4	D-E	On-Ramp	1,500	6,000	1,000	700
5	E-F	Basic	9,000	6,000	-	-
6	F-G	Off-Ramp	1,500	6,000	250	450
7	G-H	Basic	1,000	5,750	-	-
8	H-I	On-Ramp	1,500	6,750	1,000	900
9	I-J	Basic	2,500	6,750	-	



Multi-Lane Highways

Example #11: US-19/27 from Avalon Rd to CR 14 (Lamont, FL)

- 4-lane divided highway
- 65 mph base FFS
- 12 ft. lane width
- 6 ft. lateral clearance on both edges
- Level terrain

Direction	Southbound	Northbound
Access Points per Mile	2	3
Hourly Volume	260	220
PHF	0.88	0.88
Trucks and Buses	12%	16%

Multi-Lane Highways

Workshop #22: SR 289 (Pensacola, FL)

- 4-lane undivided highway
- 50 MPH speed limit posted
  - 55 base free-flow speed
- 12 ft. lane width
- No lateral clearance on right edge
- Level terrain
- No on-street parking available
- Pavement rating: 5

Direction	Southbound	Northbound
Access Points per Mile	30	35
Hourly Volume	765	975
PHF	0.92	0.85
Trucks and Buses	5%	2%

Multi-Lane Highways

Workshop #23: US-301 (Wildwood, FL)

- 4-lane highway with TWLTL
- 40 MPH speed limit posted
  - 45 MPH base free-flow speed
- 12 ft. lane width
- 8 ft. lateral clearance on right edge
- Level terrain
- No on-street parking available
- Pavement rating: 4

Direction	Southbound	Northbound
Access Points per Mile	18	23
Hourly Volume	690	890
PHF	0.94	0.90
Trucks and Buses	11%	13%

Multi-Lane Highways

Workshop #24: SR 40 (Ormond Beach, FL)

- 4-lane divided highway
- 45 MPH posted speed limit
  - 50 MPH base free-flow speed
- 11 ft. lane width
- 6 ft. lateral clearance on left edge
- No clearance on right edge
- Level terrain
- Driver population factor: 0.90
- No on-street parking available
- Pavement rating: 3

Direction	Eastbound	Westbound
Access Points per Mile	11	15
Hourly Volume	1,840	1,130
PHF	0.84	0.78
Trucks and Buses	9%	20%

Multi-Lane Highways

Workshop #25: US 27 (Haines City, FL)

- 6-Lane divided highway
- 50 mph posted speed limit
  - 55 mph base free-flow speed
- 12 ft. lane width
- 6 ft. lateral clearance to the left and right
- Level terrain
- No on-street parking available
- Pavement rating: 4

Direction	Eastbound	Westbound
Access Points per Mile	8	8
Hourly Volume	1,845	1,845
PHF	0.92	0.92
Trucks and Buses	9%	9%

Two-Lane Highways

Example #12: SR 490 (Lecanto, FL)

- Level terrain
- 2 ft. shoulder width
- 12 ft. lane width
- 6.0-mile corridor length
- Class I highway segment
- 90% no passing zones
- 10 access points per mile
- 55 mph base FFS (50 mph posted)
- Pavement rating: 3

Analysis Direction Volume	444 vph
Opposing Direction Volume	296 vph
PHF	0.85
Trucks and Buses	6%

Two-Lane Highways

Workshop #26: SR 789 (Sarasota, FL)

- Level terrain
- 4 ft. shoulder width
- 11 ft. lane width
- 17.7-mile corridor length
- Class III two-lane highway segment
- 70% no passing zones
- 25 access points per mile
- 55 mph base FFS (50 MPH posted)
- Pavement rating: 4

Analysis Direction Volume	684 vph
Opposing Direction Volume	456 vph
PHF	0.90
Trucks and Buses	4%

Two-Lane Highways

Workshop #27: SR 20 (Crawfordville, FL)

- Level terrain
- 6 ft. shoulder width
- 12 ft. lane width
- 14.5-mile corridor length
- Class II two-lane highway segment
- 62% no passing zones
- 13 access points per mile
- 60 MPH base FFS (55 MPH posted)
- Pavement rating: 4

Analysis Direction Volume	353 vph
Opposing Direction Volume	182 vph
PHF	0.88
Trucks and Buses	7%

Two-Lane Highways

Workshop #28: SR A1A (St. Augustine, FL)

- Level terrain
- 2 ft. shoulder width
- 11 ft. lane width
- 15-mile corridor length
- Class III two-lane highway segment
- 80% no passing zones
- 25 access points per mile
- 55 MPH base FFS (50 MPH posted)
- Pavement rating: 3

Analysis Direction Volume	420 vph
Opposing Direction Volume	180 vph
PHF	0.90
Trucks and Buses	2%

Two-Lane Highways

Workshop #29: 8th Avenue (Gainesville, FL)

- Rolling terrain
- 2 ft. shoulder width
- 11 ft. lane width
- 2.5-mile corridor length
- Class II two-lane highway segment
- 60% no passing zones
- 10 access points per mile
- 50 MPH base FFS (45 MPH posted)
- 15% occupied on-highway parking
- Pavement rating: 4

Analysis Direction Volume	630 vph
Opposing Direction Volume	270 vph
PHF	0.85
Trucks and Buses	3%

Wrap-Up

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