

Trafficware UNIVERSITY

South Texas Section
Institute of Transportation Engineers

What's New at Trafficware?
San Antonio
July 27, 2011




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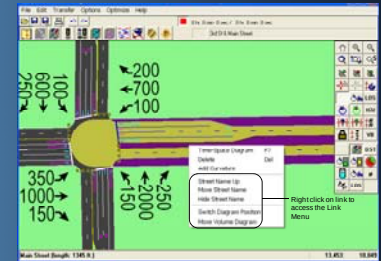
Synchro 8.0 Features

- Map View
 - Time Tracker
 - Move/Hide Street Name
 - Switch Volume Diagram
 - Label Background Options
 - Link is Hidden (Lane Settings)
 - Hide Name in Node Title
 - Bing™ Aerial

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Synchro 8.0 Features

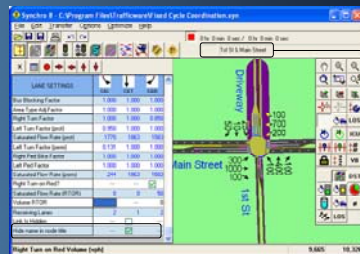
- Move/Hide Street Name



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Synchro 8.0 Features

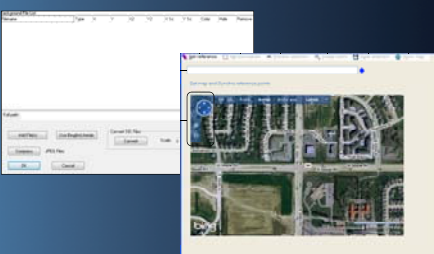
- Move/Hide Name & Hide Name in Node Title



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Synchro 8.0 Features

- Bing™ Aerial



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Synchro 8.0 Features



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Synchro 8.0 Features

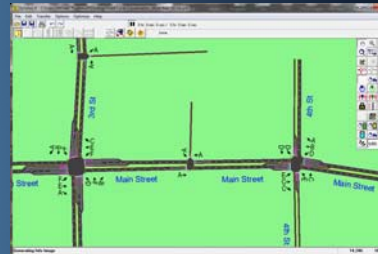
➤ Tool Bar

- Tool Bar
 - Show LOS-V/C by Movement
 - Move Tool Bar
- Default Detector Settings

Synchro 8.0 Features

- LOS By Movement

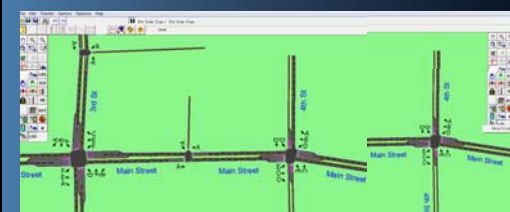
- LOS By Movement



Synchro 8.0 Features

- Move Tool Bar

- Move Tool Bar



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SimTraffic 8.0 Features

➤ Synchro Coded

- Synchro Coded
 - Mandatory Stop on Yellow
 - Increase Cycle & Split Times
 - Link is Hidden
- SimTraffic
 - Video Recorder
 - Enable 3D File Button
 - SSAM Export

SimTraffic 8.0 Features

➤ Synchro Coded

- Synchro Coded
 - Mandatory Stop on Yellow (Timing Settings)
 - Increase Cycle & Split Times
 - Link is Hidden (Lane Settings)

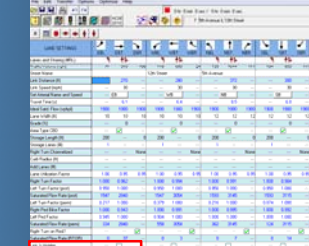
SimTraffic 8.0 Features

- Increase Cycle and Split Times



SimTraffic 8.0 Features

- Link is Hidden (Lane Settings)



SimTraffic 8.0 Features

- SimTraffic
 - Video Recorder
 - Enable 3D File Button
 - SSAM Export

SimTraffic 8.0 Features

- Video Recorder



3D Viewer 8.0 Features

- 3D Viewer
 - Import Custom 3ds Objects
 - Changing Size of an Object
 - Generate Digital Videos

3D Viewer 8.0 Features

- Generate Digital Videos – Pause Feature



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HCM 2010 Revisions

- HCM Chapters
 - Signalized Intersections – Chapters 18 & 31
 - Roundabouts – Chapters 21 & 33

Intersection	Type of Revision
Urban Street Facilities	New Method
Urban Street Segments	Updated
Signalized Intersections	Updated
Unsignalized Intersections	Separate TWSC & AWSC Chapters
Roundabouts	New Method
Interchange Ramp Terminals	Updated
Off-Street Ped/Bike Facilities	Minor Changes

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HCM 2010 Revisions

Multi-Modalism

- Pedestrian, Bicycle and Transit incorporated into respective chapters
- Quality of service and level of service

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HCM 2010 Revisions

Signalized Intersections (Dual Ring Approach (NEMA) Phasing)

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HCM 2010 Revisions

Signalized Intersections (Iterative Phase Duration Procedure)

- New Methodology
- Iteratively calculates average green durations based on user provided signal timing and phasing information (min, max, recall, detection, etc.)
- Benefits actuated and coordinated phases
- Average green time not required by user

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HCM 2010 Revisions

Signalized Intersections (IQA Method)

- Incremental Queue Accumulation Method for calculating d_1 and Q_1
- Methodology estimates delay based on changing capacities and arrival rates during the signal cycle
- Several Queue Accumulation Polygons (QAP) are required depending on phasing and lane usage

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HCM 2010 Revisions

Signalized Intersections (Comp. Engine)

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[illegible]

HCM 2010 Revisions

Signalized Intersections (Key Auto Mode Limitations)

- Turn bay overflow
- Demand starvation due to closely spaced intersections
- Queue spillback
- Phase overlap
- A right-turn movement that is not under signal control
- RTOR volume prediction or resulting delay
- Turn movements served by more than two exclusive lanes
- Comp Engine does not consider actuated-coord signals (Synchro estimates based on procedures within HCM)

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HCM 2010 Revisions

Roundabouts



- Based on empirical data within US
- Lower capacities than other countries
- Analysis of two-lane roundabouts
 - Lane-by-lane analysis for multilane roundabouts
- Capacity sensitive to number of lanes
 - Effect of geometric features shadowed by variations in driver behavior
- Encouraged to calibrate to local conditions
 - Critical and follow-up headways

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HCM 2010 Revisions

Roundabouts cont.

- Entry, exit and conflicting flow rates
 - Lane-by-lane assignment of flows
- Capacity function of conflicting flow
 - Right & left computed separately
- Right-turn by-pass lanes considered
 - Either yielding exits or free flowing
- Encouraged to calibrate to local conditions
 - Critical and follow-up headways

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HCM 2010 Revisions

Roundabouts (LOS Thresholds)

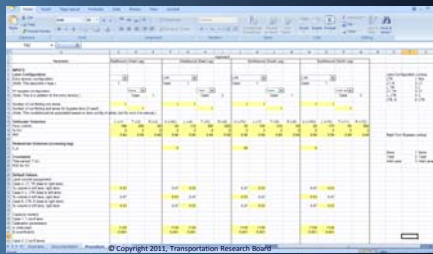
- Delay Values mimic Unsignalized Thresholds
- Note LOS if $v/c > 1.0$

Control Delay (s/veh)	Unsignalized	$v/c > 1.0$
0 - 10	A	F
> 10 - 15	B	F
> 15 - 25	C	F
> 25 - 35	D	F
> 35 - 50	E	F
> 50	F	F

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HCM 2010 Revisions

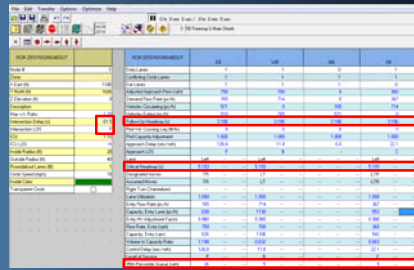
Roundabouts Comp. Engine



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HCM 2010 Revisions

Roundabouts (Synchro Window)



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HCM 2010 Revisions

Roundabout Key Limitations

- Upstream/downstream roundabouts or signalized intersections
- Extremely high entering traffic volumes
- High volumes of pedestrians and/or bicyclists
- More than two entry lanes
- Limited or short entry designs
- Pedestrian model not based on U.S. roundabouts
- Bicycle operations not available

Synchro Studio 8.1?

➤ What is *Trafficware* working on?

- Unsignalized Intersections
 - AWSC
 - TWSC
- Urban Streets
 - Multimodal LOS
 - Segments
 - Facilities

Synchro 8.0 Summary

➤ Several new features within Synchro & SimTraffic

➤ HCM 2010 Methodology

- Signalized Intersections
- Roundabouts

SynchroGreen
Real-Time Adaptive Traffic Control System



What is SynchroGreen?

- Real-time adaptive traffic control system
- Adjusts signal timing based on current traffic
 - Normal fluctuations
 - Traffic surges
 - Accidents
 - Diversion



What is SynchroGreen?

- Uses SynchroGreen MIB inside the controller
- Utilizes standard NTCIP
- Does not use old style “black box”
- Uses Synchro™ and SimTraffic™ to setup and simulate
- Optimize adaptive settings before deployment
- You are in control!

Topology – Localized Control

- Uses fully actuated local controller
- Enter/Exit Adaptive mode instantly
- Local controller setup is minimal
 - Phase sequences and coordinated direction
 - Can change by time-of-day
- Compatible with existing hardware and ATMS

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Strategy

- SynchroGreen Balanced Mode
 - Minimizes network delay
- SynchroGreen Progression Mode
 - Favors progression along the corridor
- SynchroGreen Critical Movement Mode
 - Focuses on critical movements, while minimizing delay

SynchroGreen

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Benefits

- No additional proprietary hardware
- Resides inside your traffic controller
- NTCIP Compliant
- Uses existing infrastructure
 - Controllers
 - Detection
- Flexible management system
 - Central system
 - Closed loop
- Web interface

NTCIP COMPLIANT

SynchroGreen resides in your traffic controller

No additional hardware is required

SynchroGreen is a closed loop system

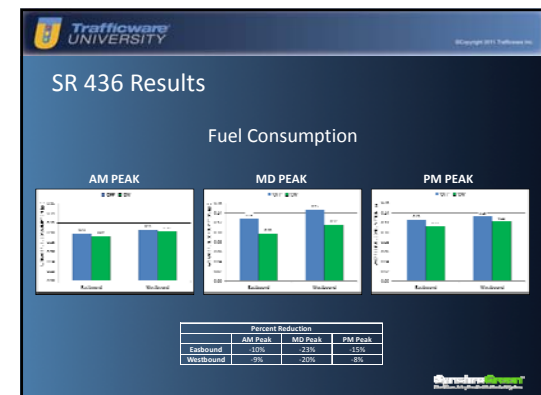
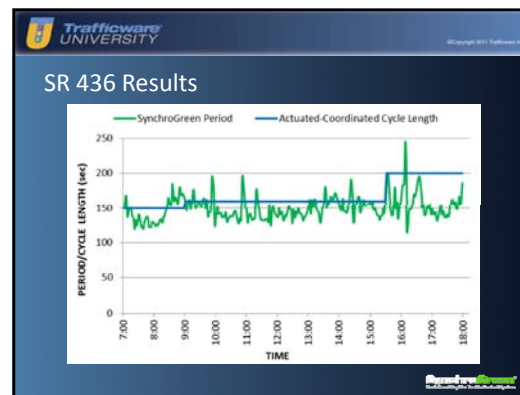
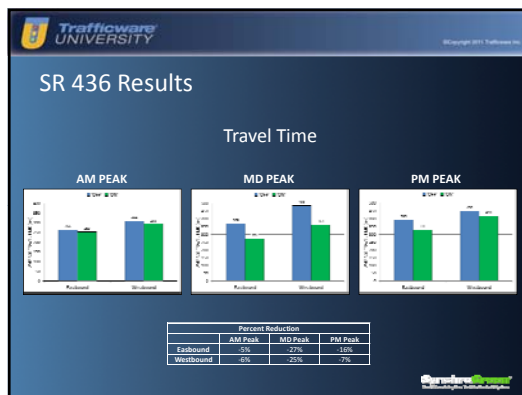
SynchroGreen

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Case Study

- SR 436 in Seminole County, Florida
- Previously actuated-coordinated system
- 12 Signalized Intersections
- 1.7 miles
- 59,600 ADT
- Heavy Pedestrian Activity (>1,100 peds/day)
- Preemption requests (>150 requests/day)
- Challenging corridor to test SynchroGreen

SynchroGreen



SR 436 Results

Emissions

Percent Reduction			
HC Emissions			
	AM Peak	MD Peak	PM Peak
Eastbound	-11%	-29%	-11%
Westbound	-5%	-25%	-8%
CO Emissions			
	AM Peak	MD Peak	PM Peak
Eastbound	-9%	-28%	-11%
Westbound	-6%	-23%	-10%
NOx Emissions			
	AM Peak	MD Peak	PM Peak
Eastbound	-10%	-25%	-6%
Westbound	-4%	-25%	-4%

Summary

- Traffic conditions less than favorable
- Unpredictable traffic conditions
- SynchroGreen showed improved operations
- SynchroGreen is being expanded in Seminole County



Website

www.synchrogreen.com



Getting Started

- Visit our website
- Send us your Synchro file
- Work with a Trafficware Engineer
- Simulate using Synchro/SimTraffic and SynchroGreen



Marshall Cheek, PE, PTOE
Traffic Engineer
Trafficware, Ltd.

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Mission Statement

Trafficware University has been developed to offer engineers, planners and technicians an array of valuable instruction on many topics within the transportation field. TU's mission is to provide traffic engineers the most current information to increase traffic system performance and professional productivity. The newly formed courses provide an expanded curriculum for gaining knowledge within the field of traffic engineering.

Instructors

Every Trafficware University instructor is a seasoned engineer or planner within the transportation field. Most bring over two decades of experience in their chosen area of study to the course they teach.

Professional Development Hours

Certificate awarded based on passing quiz

Training Certificate
PRESENTED TO
Bill Jack
For successful completion of a training course on
Structure and Site Traffic at Philadelphia, Pennsylvania
Mar 11, 12 & 13 - 2011
(3 PDHs)
Steve Brown, PE, PSE
Instructor

The intersection of knowledge, ideas & implementation

Announcements
Calendar
Course Search
Knowledge Base

Trafficware University Courses

Course	Instructor	Prerequisites	Course	Date	Length	Cost
2011 Fall 1st Summer Meeting	Steve Brown		2011 Fall 1st Summer Meeting	July 11, 12 & 13 - 2011	3 Days	\$1,500
2011 Fall 2nd Summer Meeting	Steve Brown		2011 Fall 2nd Summer Meeting	July 11, 12 & 13 - 2011	3 Days	\$1,500
2011 Fall 3rd Summer Meeting	Steve Brown		2011 Fall 3rd Summer Meeting	July 11, 12 & 13 - 2011	3 Days	\$1,500
2011 Fall 4th Summer Meeting	Steve Brown		2011 Fall 4th Summer Meeting	July 11, 12 & 13 - 2011	3 Days	\$1,500
2011 Fall 5th Summer Meeting	Steve Brown		2011 Fall 5th Summer Meeting	July 11, 12 & 13 - 2011	3 Days	\$1,500
2011 Fall 6th Summer Meeting	Steve Brown		2011 Fall 6th Summer Meeting	July 11, 12 & 13 - 2011	3 Days	\$1,500
2011 Fall 7th Summer Meeting	Steve Brown		2011 Fall 7th Summer Meeting	July 11, 12 & 13 - 2011	3 Days	\$1,500
2011 Fall 8th Summer Meeting	Steve Brown		2011 Fall 8th Summer Meeting	July 11, 12 & 13 - 2011	3 Days	\$1,500
2011 Fall 9th Summer Meeting	Steve Brown		2011 Fall 9th Summer Meeting	July 11, 12 & 13 - 2011	3 Days	\$1,500
2011 Fall 10th Summer Meeting	Steve Brown		2011 Fall 10th Summer Meeting	July 11, 12 & 13 - 2011	3 Days	\$1,500

Trafficware University Courses

Year: Month: Week: City: July 2011

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
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User account

Username:

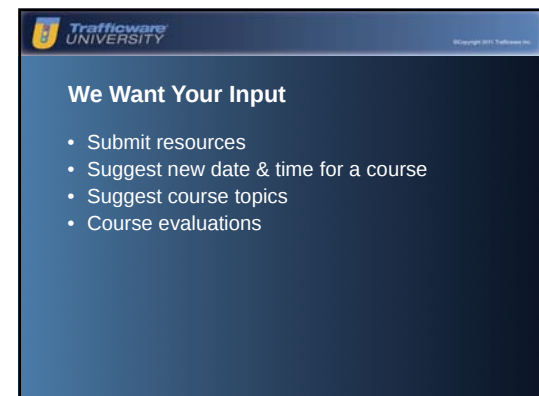
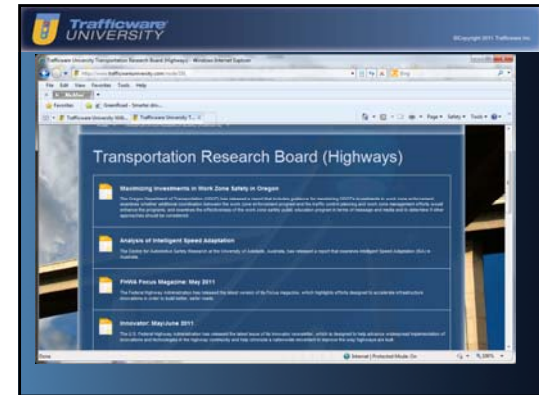
Password:

Log in

Forgot your password?

Sign up for a new account





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Thank You

- Submit resources
- Suggest new date & time for a course
- Suggest course topics
- Course evaluations

