Traffic Management Centers for the *Extreme* Do-It-Yourselfer

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March 28, 2007

ITE 2007 Technical Conference

So, can "we" (us City-types) build a TMC ourselves??
Maybe….Depends upon the answers to the following questions:

1. What traffic management software do you want to use? (Typically driven by existing or planned controllers)
2. What communications links are available or planned?
3. What communications protocol to use?

TMC-Traffic Signal Communication Links

- Fiber optic cable (High cost, not for DIY, great bandwidth)
- Existing copper (Low cost, possible DIY, moderate bandwidth)
- Radio links (Can be low cost, easy DIY, modest bandwidth)
- T1 lines (Moderate recurring cost, DIY, good bandwidth)
- Cellular modems (Low recurring cost, DIY, low bandwidth)

The system can be a mixture of any of these.
The "right tool for the right job" applies.

Communications Protocols –Ethernet or Serial?

Ethernet

- Widespread
- Superficially complex
- Plentiful equipment
- High bandwidth
- ITS Dept support
- Easily scales

Serial

- Used to be THE standard
- Simple in low numbers
- Equipment phasing out
- Moderate bandwidth
- Device dependent
- "So last Century"

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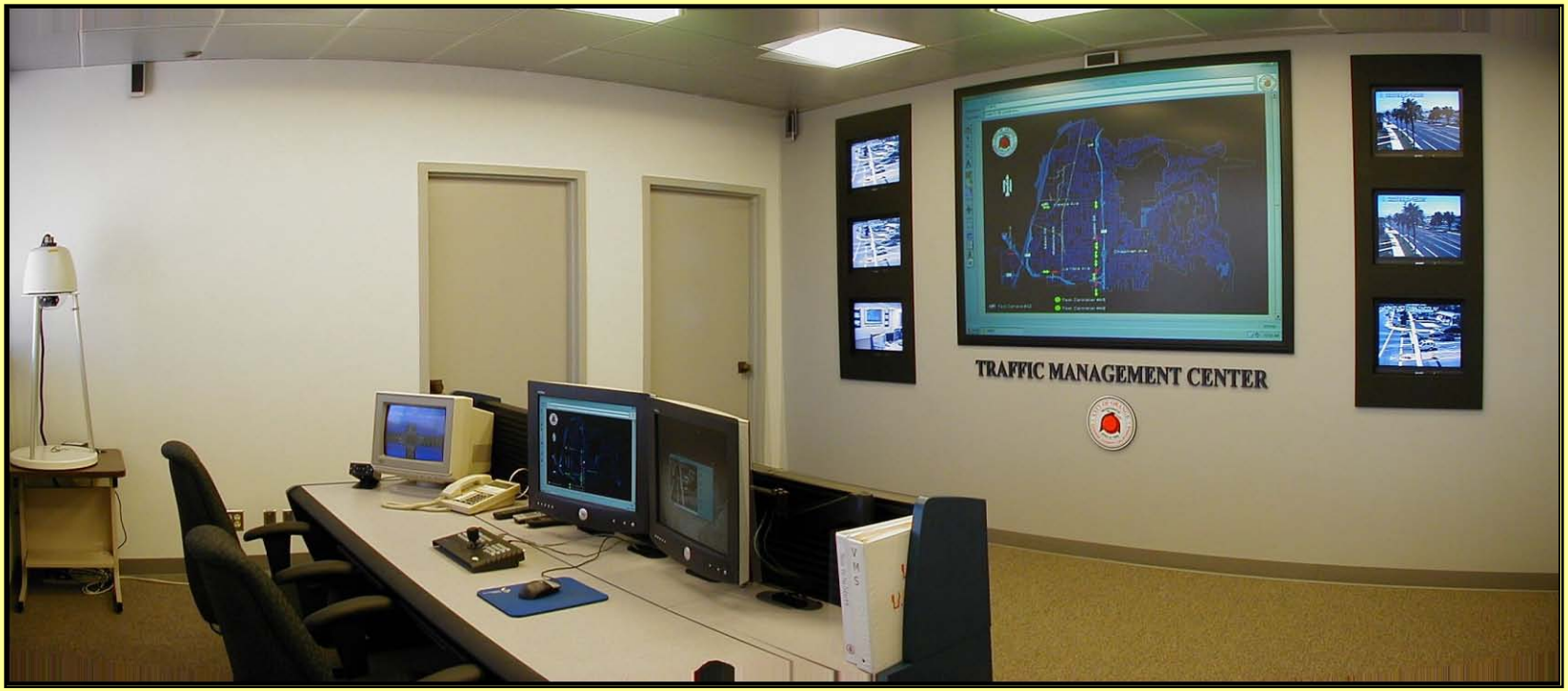


Welcome to Mission Control

Approximate hardware cost ~ **$122,000**

The magical guts that make it all happen

Traffic Management Centers for the Extreme Do-It-Yourselfer

You can never be too rich, be too thin or have too many screens

Wait, you say you can't afford a Mission Control?

How about a functional equivalent for $2,400?

And never, EVER forget….

Summary of Initial Costs for City of Orange

- TMC room remodel (design and construction) $7k + $29k
- TMC control console $10k
- Two computer workstations, a laptop and system server $10k
- Video display wall with 90” central screen and six 20” monitors $80k
- Two CCTV cameras with wireless video links $13k
- One CCTV camera with fiber link $6k
- Communications racks, video switch and support hardware $6k

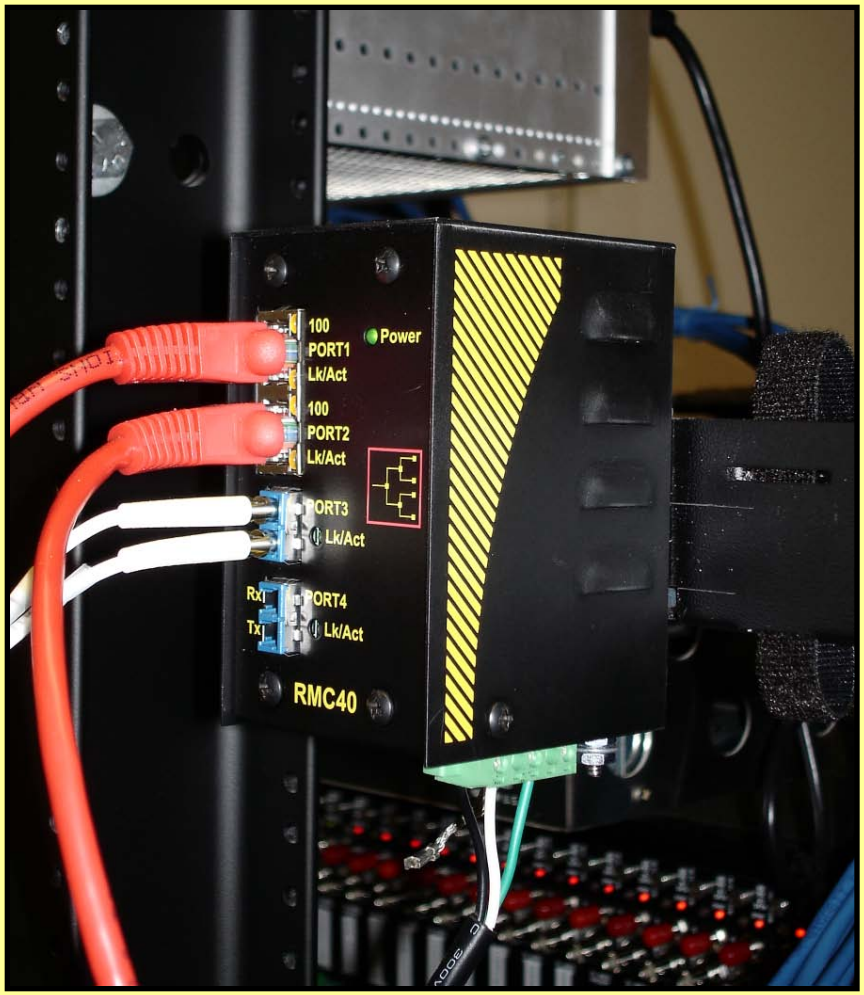
Total hardware cost ~ **$161,000**
Software cost: **$101,000**
Total initial TMC cost: **$262,000**

Total cost without "Mission Control" would have been ~ $140,000

But let's talk about the really fun stuff…..

Hardware!!!

Inexpensive (<$800)
fiber optic modem



- 2 copper, 2 SM fiber ports
- Unmanaged, easy to use
- Just plug and go
- Can daisy-chain controllers
- *Very* rugged and hardened
- Needs two fibers (1 in & 1 out)

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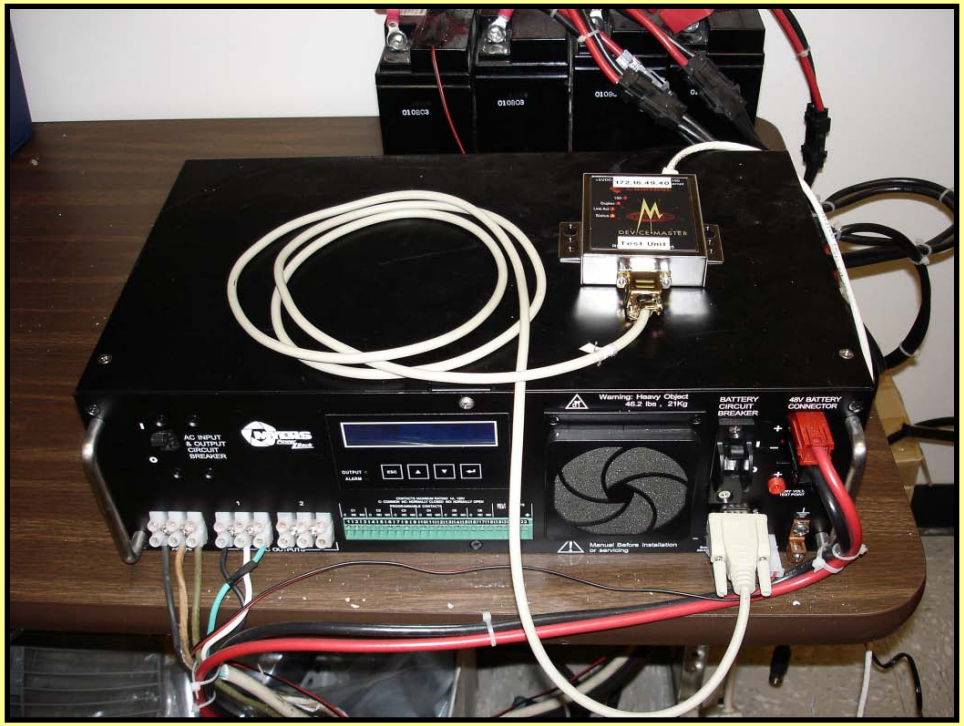

- Serial port device server (~$170 each)
- Allows RS-232 serial ports to be accessed over Ethernet network
- Battery backup units can be monitored from the TMC
- Minimal setup (only have to assign IP address for device)
- Can work for controllers too

Can you find the traffic monitoring camera?

Development's contribution to traffic mitigation installed under the terms of a negotiated development agreement

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It’s always fun to drill holes in someone else’s building

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5.8 GHz Wireless Video Link

- Distance to TMC ~ 4 miles
- Cohu PZT camera
- Verint "SmartSight" radio
- Home Depot fittings & paint
- Scrap aluminum
- "Free" electricity

Total cost ~ $7,000

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But be afraid of window washers…Be *very* afraid

More wireless video fun……

Typical intersection

TMC end

So, asking the question again…

Can we build a TMC ourselves??

Probably…..because….

Engineering School = ***HARD***

Traffic Management Center = ***Easy***