Pinellas County Board of County Commissioners (BCC)
BCC Assembly Room
315 Court Street, 5th Floor
Clearwater, Florida 33756

August 1, 2013

WORK SESSION AGENDA

9:30 a.m.

1. Fitch& Associates, LLC Report on Operational Analysis of Emergency Medical Services and Fire Deployment/Response

(Continuance of July 19, 2013 BCC Work Session)

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Citizens' Comments Will Follow Presentation

Any Person Wishing to Speak During the "Citizens' Comments" Portion of the Work Session Agenda Must Have a Yellow Card Completed and Given to the Agenda Staff at the Staff Table. The Chairman Will Call the Speakers, One by One, to the Podium to be Heard. Each Speaker May Speak up to Three (3) Minutes.

SAFETY & EMERGENCY SERVICES

MEMORANDUM

TO: Pinellas County Board of County Commissioners

THROUGH: Robert LaSala, County Administrator

FROM: Bruce J. Moeller, Executive Director, Safety & Emergency Services

SUBJECT: FINAL Fitch Report

DATE: July 9, 2013

Attached is the FINAL Report from Fitch & Associates on *Operational Analysis of EMS & Fire Deployment/Response for Pinellas County, Florida.*

This Report will be presented to the Board at the Work Session scheduled for Friday, July 19, 2013. A continuation of that discussion is also scheduled for the Board's August 1, 2013, Work Session.

Should you have any questions, please let me know.

Attachment (1)

Modeling Approach-Pinellas County

SCENARIO REVIEW AND DISCUSSION: BASELINE, IPS AND SANFORD/MILLICAN (FIRE TRANSPORT), HYBRID, CARES

FITCH
& ASSOCIATES

Outline of the Presentation

- Who we are
- What we were asked to do
- How we accomplished it
- The modeling
  - Baseline
  - IPS
  - Sanford Millican
  - Hybrid
  - CARES

Description of scenarios
Summary of findings

Who we are

- Fitch
- Optima

What we were asked to accomplish

- Using commercially available software evaluate
- IPS report
- Sanford Millican report
- Determine the workload of Sanford Millican and correct it to reflect a realistic outcome
- Based on the consultants' experience develop an optimized option that would form the baseline for discussion between the county and the cities
  - The system excellence had to be maintained (or as close as possible)
  - The system costs had to be reduced if possible (No increased cost)

How we accomplished it

- Pulled data from two computer aided dispatch systems from fiscal year 2011
- **Consultant and PSS Staff Conference Calls**: Occurred biweekly between September 2012 and end of May 2013; cancellations were infrequently and were usually due to consultants having recently been on-site)
-
- **Bi-weekly Situation Reports** (Project Updates): provided bi-weekly for the duration of the project through end of May 2013
-
- **Consultants on site over project duration:**
- Jay Fitch PhD
- Chief Jim Broman MPA
- Guillermo Fuentes MBA
- Chris Callsen
- Dianne Wright MPA

How we accomplished it continued

- **Stakeholders included in various meetings:**

○ Mayor and Commissioners ○ County Administrator and Staff ○ Public Safety Services Staff ○ County Information Technology ○ Fire Chiefs and staff ○ City Managers ○ State elected officials ○ Other local elected officials	○ Labor Representatives ○ EMS Advisory Council ○ Medical Control Board ○ Ambulance Contractor ○ System Medical Director ○ Hospital Administrators ○ Lt. Sanford and Capt. Millican ○

How we accomplished it continued

- **Survey tools:** Sent to Fire Chiefs to clarify operational issues for Sanford/Millican and one for IPS to clarify operational issues.
- **Fire Chiefs:** Chiefs were engaged and offered opportunities to meet with consultants, attend simulation previews and to provide feedback on the models on all but one on-site visit.
- **Crew Cost Development:** sent to Fire Chiefs to review, confirm or amend

On-Site Dates	
Mid-October 2012	Mid-March 2013
Early November 2012	Late April (Two WebEx meeting opportunities)
Early December 2012	2013
Early January 2013	Early May 2013
Mid-January 2013	Mid-May 2013
Early February 2013	Planned: June 24
Early March 2013	Planned: July 2013
	Planned: August 2013

Modeling

Understanding the data

Fire District	Total Calls	Fire Emergency Other	Fire Emergency Medical	Cancelled or Downgraded	% Cancelled/ Downgraded
St. Petersburg	47,084	7,619	27,083	12382	26.3%
Clearwater	24,602	3,919	14,482	6201	25.2%
Largo	19,993	2,493	12,642	4858	24.3%
Pinellas Park	14,063	2,314	8,174	3575	25.4%
Seminole	10,025	1,533	6,062	2430	24.2%
Lealman	7,353	1,051	4,404	1898	25.8%
Palm Harbor	7,225	884	4,456	1885	26.1%
Dunedin	6,246	785	3,794	1667	26.7%
Tarpon Springs	3,763	663	2,183	917	24.4%
South Pasadena	2,348	229	1,495	624	26.6%
Safety Harbor	2,318	375	1,432	511	22.0%
East Lake	2,228	373	1,278	577	25.9%
Gulfport	2,036	405	1,097	534	26.2%
St. Pete Beach	1,908	279	1,200	429	22.5%
Pinellas Suncoast	1,802	320	977	505	28.0%
Oldsmar	1,645	312	919	414	25.2%
Treasure Island	1,254	220	712	322	25.7%
Madeira Beach	1,108	199	598	311	28.1%
Redington Beach	685	111	384	190	27.7%
Belleair	592	110	376	106	17.9%
Belleair Bluffs	526	88	306	132	25.1%
Tierra Verde	311	64	168	79	25.4%
Fort Desoto Park	140	24	68	48	34.3%
Oldsmar Contract	8	1	4	3	37.5%
Pinellas County	**159,263**	**24,371**	**94,294**	**40,598**	**25.5%**

Review: Baseline Scenario

- System tuned to match historic performance
- Simulates both fire and EMS incident response
- Quick Reminder: The system (and the model) contain both rescue units and rescue capability
- Modeling Approach:
  - Set Boundaries of Performance (Worst Case and Best Case)
  - Evaluate Performance
  - Optimize Unit/Resource Placement
  - Determine Scenarios Based Upon Specified Criteria

Summary Baseline

Simulation Baseline
Achieves response time targets. Less than 1 percent difference from historic fire model and 3-4 percent from the historic Sunstar model
Has a combined 1.2 million unit hours
Has crew costs of $ 112.8 Million

IPS Scenario Discussion

IPS A-1 (No Resource Added)

- Essentially 'IPS Baseline'
- No Rescue Capability Added
- Performance Impact:
  - Fire Medical Calls ↓ to 83.29% (-8.63)
  - Fire Other Calls: ↓ to 92.25% (-1.37%)
- **IPS A-2 (All 19 Fire Units Transitioned to ALS Capability)**
  - Fire Medical Calls ↓ to 91.13%
  - Fire Other Calls ↓ to 92.37%

IPS A-3 (Resource Enhancement and Optimized)

- 13 units upgraded to Rescue Capability
- Optimization used to evaluate the best possible station placements for upgraded capability

Response Target	Call Count	Baseline	Scenario	Difference
Fire Emergency Medical	94,294	91.92%	90.75%	-1.17%
Fire Emergency Other	24,371	93.63%	92.37%	-1.26%
All Fire Calls	156,454	92.20%	90.96%	-1.24%

Summary IPS

Simulation IPS
Achieves response time targets as an aggregate but some areas are hurt by this model
Cuts over 215 thousand unit hours from the system
Decommissions 25 apparatus and 150+ firefighters would need to be laid off
Has crew costs of $90.8 Million
Incurs additional fleet operational costs of $5.0 Million, the use of heavy equipment for response has additional risks of accidents and of vehicle break down
Demonstrates excess capacity in the system

Fire Transport Scenarios (Sanford/Millican)

SM-1 (Initial Configuration)

- Implementation of MPDS Driven Dispatch Approach
- 12 Hour Shift Schedule for PLU Rescue Units
- 16 Peak Hour Units
- 36 Rescue Units
- Performance on Fire Medical Calls exceeds the baseline as does Fire Emergency Calls
- Primary Concern: Utilization: Rescues @ 42.21% and PLUs @ 62.18% (very heavy workload)

SM-2 (Utilization Constrained)

- 12 Hour Shift Schedule for PLU Rescue Units
- 48 Peak Load Units
- 43 Rescue Units
- Performance on Fire Medical Calls exceeds the baseline as does Fire Emergency Calls and Fire All Calls
- Utilization Controlled: Rescues @ 24.60% and PLUs @ 34.34%

Summary Sanford/ Millican Proposal

Simulation SM-1
Achieves response time targets.
Has crew costs of $111.8 Million
Crew utilization levels are not safe to implement (over 60 percent work load for 12 hours and over 40 percent for 24 hours)
To be cost competitive the system SM-1 cuts over a 135 thousand unit hours from the system, so for basically the same cost you are getting less service
New governance structure operationally difficult to implement

Summary Sanford/ Millican Adjusted

Simulation SM-2
Achieves response time targets.
Crew costs are significantly more than other models: $120.9 Million
Complies with utilization recommendations
New governance structure operationally difficult to implement

Utilization Across Models

Unit Type	Baseline	IPS-1	IPS-2	SM-1	SM-2
Rescue	14.46%	N/A	N/A	41.21%	24.60%
Engine	8.70%	14.84%	13.49%	8.44%	7.54%
Truck	3.91%	5.75%	8.72%	3.57%	3.07%
Squad	4.41%	5.87%	6.80%	3.56%	2.89%
Fire PLU	N/A	N/A	N/A	62.18%	34.34%
Sunstar	54.80%	55.27%	54.90%	N/A	N/A

Understanding Hybrid Models

- What are Hybrid Models
- Cost per time on task
- Cost per Call
- Fragmenting transport systems
- Cost of fragmenting transport systems

What are Hybrid Models

- Hybrid models are based on the principle of subdividing the calls to multiple transport providers either based on geography (one city transports and another provider does the rest of the calls) or on call type (emergency versus interfacility) or a combination of both. One has to first determine the cost per call by each of the providers in order to understand if it is fiscally responsible to substitute one provider with another.

Crew Time on Task

- There are two components to the cost of these hours of crew time-on-task. First, a crew is paid for its whole shift, not solely while it is running on a call. It is not possible to directly purchase hours of crew time-on-task. Rather, the only thing that can be purchased is total crew hours.

- Second, the concept of workload enters the picture. For instance, a fire department crew works a 24 hour shift. Of the 24 hours, only some fraction can be spent actively responding to the needs of patients. This fraction is referred to as "workload" and is defined as:

- Workload = [hours crew time-on-task] / [total crew hours] [**Eqn. 1**]

- What the emergency medical transport function in Pinellas County requires is hours of crew time-on-task. This metric is obtained by an algebraic rearrangement of Equation 1.

- [hours crew time-on-task] = Workload * [total crew hours] [**Eqn. 2**]

Cost per time on task

Cost Factors	Sunstar Ambulance Service	St. Petersburg Fire Department 24-hr Rescues
Hours of Crew-On-Task (active work) A	1.00	1.00
Workload B	0.57	0.246
Hours of Crew-On-Shift (total hours on duty) C = A / B	1.75	4.07
Cost of 1.00 Hour Crew-On-Shift (total hours) * D	$42.23	$124.52
Cost of 1.00 Hour Crew-On-Task E = C x D	$73.90	$506.18
Relative Cost 1.00 Hour Crew-On Task F = E / Sunstar	1.0 X	6.8 X

Cost per Call

District	Crew Time-on-Task [$$ / hour]		Call Volume	Total Personnel Costs of Transports		Increased Cost of Transport by FD's
	Sunstar	Fire Crews		By Sunstar	By FD's	
St. Petersburg	$73.90	$506.18	27,083	$ 2,001,434	$ 13,708,873	$ 11,707,439
Clearwater	$73.90	$300.20	14,482	$ 1,070,220	$ 4,347,496	$ 3,277,276
Largo	$73.90	$366.26	12,642	$ 934,244	$ 4,630,259	$ 3,696,015
Pinellas Park	$73.90	$308.83	8,174	$ 604,059	$ 2,524,376	$ 1,920,317
Seminole	$73.90	$327.36	6,062	$ 447,982	$ 1,984,456	$ 1,536,474
Lealman	$73.90	$348.58	4,456	$ 329,298	$ 1,553,272	$ 1,223,974
Palm Harbor	$73.90	$362.03	4,404	$ 325,456	$ 1,594,380	$ 1,268,924
Dunedin	$73.90	$311.54	3,794	$ 280,377	$ 1,181,983	$ 901,606
Tarpon Springs	$73.90	$336.67	2,183	$ 161,324	$ 734,951	$ 573,627
South Pasadena	$73.90	$385.81	1,495	$ 110,481	$ 576,786	$ 466,305
Safety Harbor	$73.90	$349.84	1,432	$ 105,825	$ 500,971	$ 395,146
East Lake	$73.90	$311.75	1,278	$ 94,444	$ 398,417	$ 303,973
Gulfport	$73.90	$270.61	1,200	$ 88,680	$ 324,732	$ 236,052
St. Petes Beach	$73.90	$313.37	1,097	$ 81,068	$ 343,767	$ 262,699
Pinellas Suncoast	$73.90	$406.10	977	$ 72,200	$ 396,760	$ 324,560
Oldsmar	$73.90	$299.84	919	$ 67,914	$ 275,553	$ 207,639
Treasure Island	$73.90	$293.50	712	$ 52,617	$ 208,972	$ 156,355
Madeira Beach	$73.90	$277.72	598	$ 44,192	$ 166,0747	$ 121,885

Fragmented systems

- The private provider would be obliged to have vehicles at the ready to back up each fire service. This forces greater idle time into the current highly efficient Sunstar transport system and increases the cost that will be charged by the private provider (some of this cost may be diminish in a future contract).

- This also creates noncontiguous coverage areas which means ambulances are moving across areas rather than stopping in the area further increasing the idle time. Below is an explanation on the cost of a disintegrated transport system

Cost of Fragmented systems

Cost Factors		Sunstar Ambulance Service Current	Sunstar Ambulance Fragmented
Hours of Crew-On-Task (active work)	**A**	1.00	1.00
Workload	**B**	0.57	0.34
Hours of Crew-On-Shift (coverage)	**C = A / B**	1.75	2.94
Cost of 1.00 Hour Crew-On-Shift (coverage) *	**D**	$42.23	$42.23
Cost of 1.00 Hour Crew-On Task	**E = C x D**	$73.90	$124.16
Relative Cost 1.00 Hour Crew-On Task Sunstar	**F = E /**	1.0 X	1.7 X

Cost of Fragmented system continued

District	Sunstar Crew Time-on-Task [$$ / hour]		Call Volume	Total Personnel Costs of Sunstar Transports		Increased Cost of Transports by Sunstar
	Current	Fragmented		Current	Fragmented	
St. Petersburg	$73.90	$124.16	27,083	$ 2,001,434	$ 3,362,625	$ 1,361,191
Clearwater	$73.90	$124.16	14,482	$ 1,070,220	$ 1,798,085	$ 727,865
Largo	$73.90	$124.16	12,642	$ 934,244	$ 1,569,631	$ 635,387
Pinellas Park	$73.90	$124.16	8,174	$ 604,059	$ 1,014,884	$ 410,825
Seminole	$73.90	$124.16	6,062	$ 447,982	$ 752,658	$ 304,676
Lealman	$73.90	$124.16	4,456	$ 329,298	$ 553,257	$ 223,959
Palm Harbor	$73.90	$124.16	4,404	$ 325,456	$ 546,801	$ 221,345
Dunedin	$73.90	$124.16	3,794	$ 280,377	$ 471,063	$ 190,686
Tarpon Springs	$73.90	$124.16	2,183	$ 161,324	$ 271,041	$ 109,717
South Pasadena	$73.90	$124.16	1,495	$ 110,481	$ 185,619	$ 75,138
Safety Harbor	$73.90	$124.16	1,432	$ 105,825	$ 177,797	$ 71,972
East Lake	$73.90	$124.16	1,278	$ 94,444	$ 158,676	$ 64,232
Gulfport	$73.90	$124.16	1,200	$ 88,680	$ 148,992	$ 60,312
St. Petes Beach	$73.90	$124.16	1,097	$ 81,068	$ 136,204	$ 55,136
Pinellas Suncoast	$73.90	$124.16	977	$ 72,200	$ 121,304	$ 49,104
Oldsmar	$73.90	$124.16	919	$ 67,914	$ 114,103	$ 46,189
Treasure Island	$73.90	$124.16	712	$ 52,617	$ 88,402	$ 35,785
Madeira Beach	$73.90	$124.16	598	$ 44,192	$ 74,248	$ 30,056

Hybrid System Conclusion

- The additional cost in the hybrid system is congruent with the findings of Sanford Millican-1. In order for a fully optimized fire transport model to be cost competitive, the system needs to be reduced by 135 000 unit hours.

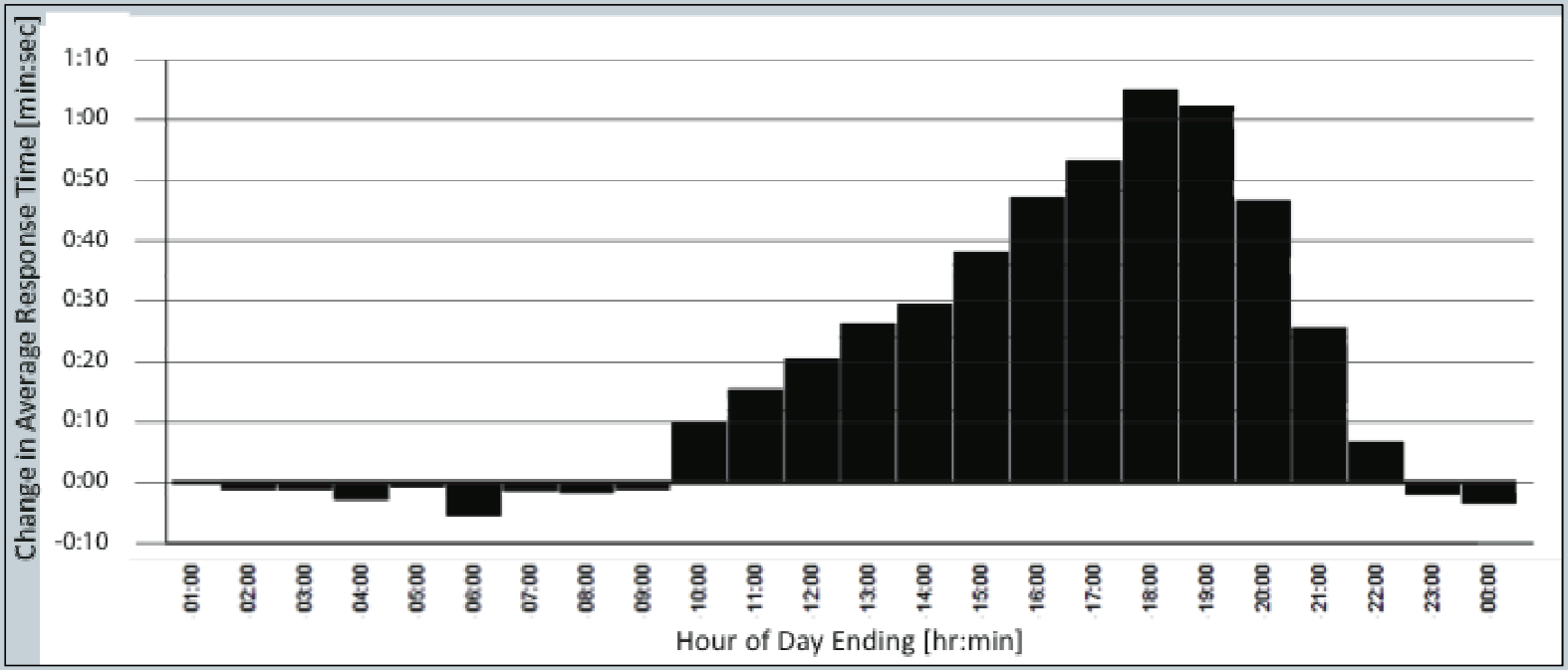
- Even if one assumed that no additional dollars would be spent on the fire system and one allowed the fire departments to transport based on whatever capacity they have, the county would still need to give the private provider an additional $ 4.675 million to maintain the current level of service (and current contract).

- Simply put the fragmentation of the transport model introduces too much idle time and non-contiguous territory that adds costs to the system.

Community-wide Alignment of Resources for Efficiency and Service (CARES)

- Reduce redundancy in any area that has multiple response units during hours that don't require them
- System reduced 19 (mostly rescue) units from 22:00 hours until 8 am
- The differences between response time performance of CARES-1 compared to HS-1 for Fire Emergency Medical and Fire Emergency Other calls are insignificant.
- The CARES-1 simulation shows that scheduled unit hours in the fire fleet decrease by 72,934 compared to the Historic Simulation, HS-1.
- Mileage in the fire fleet increases marginally by 10,076 miles. This will have a negligible effect on operational costs.

Evaluation of Resource Impact



Sunstar Dispatched Only As Needed: Alpha/Omega Calls

- A baseline to this scenario was developed by not dispatching a Sunstar vehicle to any one of the 23,624 Alpha and Omega calls.
- There is no significant change in compliance for Sunstar calls. There is a reduction in utilization for Sunstar vehicles, which drops from 54.80% to 47.78%. The total distance travelled for Sunstar vehicles also drops from 2,431,272 miles to 2,117,894 miles.

Response Target	Call Count	Baseline	Scenario	Difference
Echo, Delta, Charlie, NA	94,364	94.84%	94.96%	0.12%
Bravo	26,499	94.65%	94.88%	0.23%
Alpha, Omega	23,624	99.96%	99.90%	-0.06%
Any ProQA	144,487	94.56%	94.34%	-0.22%
Sunstar P1	84,379	95.73%	95.63%	-0.10%
Sunstar P2	61,707	87.51%	87.26%	-0.25%
Sunstar P1 and P2 no ProQA	6,692	37.01%	38.27%	1.26%

Sunstar Only: Alpha/Bravo

- No Fire vehicles are dispatched to the calls with Alpha, Omega and Bravo ProQA determinant, if there's a Sunstar vehicle within 10 minutes driving time.

Response Target	Call Count	Baseline	Scenario	Difference
Echo, Delta, Charlie, NA	94,364	94.84%	95.09%	0.25%
Bravo	26,499	94.65%	69.09%	-25.56%
Alpha, Omega	23,624	99.96%	98.92%	-1.04%
Any ProQA	144,487	94.56%	84.50%	-10.06%
Sunstar P1	84,379	95.73%	90.57%	-5.16%
Sunstar P2	61,707	87.51%	71.14%	-16.37%
Sunstar P1 and P2 no ProQA	6,692	37.01%	38.33%	1.32%

Summary **Community-wide Alignment of Resources for Efficiency and Service** CARES

Simulation CARES
Achieves response time targets.
Crew costs are less than current system $105.7 Million
Retains a balanced inventory of apparatus – matched to call demand
Utilizes current governance structure.
Recommends use of fire on low acuity calls (alpha calls) as primary response : • **Removing fire from alpha calls does not reduce unit hours** • **Sending fire as primary responder increases fire work load** • **Follows fires community mission** • **Reduces unnecessary pressure on transport units by potentially canceling 8000 transports, scheduling 8000 transports and only having 8000 immediate responses on low acuity calls** • **Sets the system up well for accountable care in which patient transport may not be key focus of system**

Conclusion

Pinellas County	Fire Emergency Medical [min:sec] @ 90%				
	HIS-1	IPS-1	SM-1	SM-2	CARES-1
[min:sec] @ 90%	7:12	7:24	6:34	6:16	7:15
Change from HIS-1		+12 sec	-38 sec	-56 sec	+3 sec
%-tile @ 7:30	91.92%	90.75%	95.73%	97.13%	91.66%
Change from HIS-1		-1.17%	3.81%	5.21%	-0.26%

Major Costs Items [$$ Millions]	HIS-1	IPS-1	SM-1[1,2]	SM-2[1,2]	CARES-1
Fire Agencies	$99.1	$77.9	$110.8	$120.9	$92.8
Sunstar	$12.9	$12.9	$0.0	$0.0	$12.9
Subtotal	**$112.0**	**$90.8**	**$110.8**	**$120.9**	**$105.7**
Fleet Ops Costs	$0.0	$4.9	$0.0	$0.0	$0.0
Total	**$112.0**	**$95.7**	**$110.8**	**$120.9**	**105.7**
Change	**$0.0**	**-$16.3**	**-$1.2**	**+$8.9**	**-$6.3**

Questions ?

FITCH
& ASSOCIATES

July 2, 2013

Operational Analysis of EMS & Fire Deployment/Response
Pinellas County, Florida

FITCH & ASSOCIATES, LLC
2901 Williamsburg Terrace #G ▪ Platte City ▪ Missouri ▪ 64079
816.431.2600 ▪ www.fitchassoc.com

CONSULTANT REPORT

Pinellas County, Florida
Operational Analysis of EMS & Fire Deployment/Response

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EXECUTIVE SUMMARY

Pinellas County's emergency medical services (EMS) system is widely recognized as one of most clinically sophisticated in North America. In recent years, however, concerns related to the system's financial sustainability have been growing. This led to the search for solutions resulting in the submission of two proposals to the Pinellas County Board of Commissioners, who also serve as the County Emergency Medical Services Authority.

Subsequently, the County Commissioners requested Fitch & Associates ("FITCH" or "The Consultant") to analyze and fully vet the two proposals. *FITCH* was asked to conduct its review from an operational perspective, to cost each proposal individually, and to compare each proposal to the existing system's operational performance and cost. The proposals and the current EMS system were to be assessed regarding performance using a sophisticated simulation process incorporating input from stakeholders at multiple stages of the project. The Consultants were also asked to use professional judgment in identifying specific system changes and develop a third plan. The intent of the third plan was to align community-wide resources to enhance efficiency, maintain service levels and result in a more efficient system, position the system for anticipated "accountable healthcare" funding models, while also facilitating long-term financial sustainability. Maintaining the current system's high level of pre-hospital care for patients and fire protection for the public was a top priority in all cases.

The study design was intended to assess various proposals and models and serve as a starting point for the County's discussion about fiscal sustainability with the City and fire agencies. To this end, the study provides objective data for that discussion.

Simulations of the following four proposals are reviewed in this document:

- **IPS:** Integrated Performance Solutions Proposal as presented to the Board of County Commissioners on October 11, 2011
- **Sanford/Millican-1 (SM-1):** Pinellas County Emergency Medical Service Providers Cost Containment and Sustainability Model as presented to the Board of County Commissioners in July 2011.
- **Sanford/Millican-2 (SM-2) (Fire transport model normalized):** The SM-1 proposal as modified in the simulation process to rectify excessive workloads on 24-hour units.
- **Community-wide Alignment of Resources for Efficiency and Service (CARES):** *FITCH*'s plan to streamline the current system, maintain performance, and reduce costs.

PROJECT METHODOLOGY AND PROCESS

Between October 2012 and May 2013, *FITCH* convened on-site meetings with elected and appointed officials at state, county and municipal levels. The Consultants also met with fire agency management, labor representatives, ambulance service management, members of the EMS Advisory Council, hospital administrators, the County Medical Control Board and the County Medical Director and toured County Communications Center, Sunstar Dispatch and Sunstar operations and met directly with Fire Chiefs.

A “snapshot in time” of the operational characteristics of the various proposals was simulated using industry accepted, commercially available, software developed by the Optima Corporation and call data taken from the historic CAD over the period FY10-11. The operational characteristics extracted from these simulations were then combined with cost data from the historic record for each district to calculate costs of the various proposals.

The Optima software simulation process was vetted with Fire Chiefs, labor representatives, and Lt. Sanford and Capt. Millican in numerous meetings starting in mid-October 2012 with the final series of meetings in early May 2013. Communication with the County Public Safety Services personnel was ongoing through bi-weekly conference calls and status updates. Cost information was obtained from the County Public Safety Services Department and fire agency personnel costs were confirmed and/or amended by each agency. *FITCH* was specifically instructed to review neither revenues nor funding strategies in these proposals

FINANCIAL ASSUMPTIONS

Pinellas County, like most governmental entities, has been challenged in recent years with declining revenues on a number of fronts. There have been numerous studies, lawsuits and resolution-based collaboration efforts regarding funding for the Pinellas EMS system partners in the past several years. Significant time and effort have been expended attempting to define and defend internal infrastructure functions (and costs) required to operate various EMS system models.

In this report, *FITCH* took a high-level approach to “true costs” in the system and to focus on differences in costs between proposals. Each of the proposals set out to accomplish the task of maintaining clinically superior performance. The infrastructure and administrative functions required by all of the models will be similar. The costs of providing these administrative and infrastructure functions will be similar in each of the proposals.

It has been the experience of *FITCH* that 70% - 80% of the total operating costs of emergency medical and fire systems are the personnel costs for the frontline responders (firefighters, paramedics, emergency medical technicians (EMTs) who staff rescues, engines, ambulances, etc.). When analyzing differences in costs between proposals, the common administrative and infrastructure costs do not materially contribute to **distinguishing** between proposals. Therefore, the assumed costs for these functions have been held constant across each of the models. The end result is that changes in personnel costs will be the largest contributor to differences in costs between proposals.

Costing for the report is based on crew costs; meaning the salary and employee benefit funding needed to staff positions for individual apparatus (rescues, engines, squads and trucks) with the compliment of personnel as determined by the fire agencies and the particular models. Only salary, benefits and staffing multipliers are included. Crew costs do not include the cost to operate vehicles, equipment, supervision, or any other infrastructure costs to provide service.

Transport revenues are assumed to be exactly the same in all proposals. Common revenue items, just as common cost items, do not materially contribute to distinguishing between proposals.

Personnel costs for Sunstar were gathered from Sunstar and county documents and confirmed by Sunstar. Personnel costs for fire department personnel were gathered from fire agency and county documents and were confirmed or amended by the Fire Chiefs.

CURRENT SYSTEM

Simulation of Historical CAD (HIS-1) —

Achieves Countywide response times targets
Has crew costs of $112.0 million
Governance structure effective

The existing fire, medical first response, and medical transport system in Pinellas County provides a high level of service to its citizens through a unique network of 18 fire agencies and a contracted ambulance transport provider operating under the County's trade name, Sunstar Paramedics. Fire districts and Sunstar work under performance-based contracts and consistently meet response targets. As required by the County EMS Ordinance, a single medical director oversees all clinical aspects of the system. The system is widely regarded as one of the most clinically sophisticated EMS systems in North America.

Pinellas County has 103 fire apparatus (vehicles) in its system, including "Rescues," "Engines," "Trucks," and "Squads." All of these apparatus operate on 24-hour schedules. In addition, Sunstar has 70 ambulances operating on flexible schedules. By way of comparison, Sunstar logged 306,147 actual unit hours during FY10-11, approximately equivalent to 35 24-hour Rescue apparatus.

In contrast to the fire districts operating on a fixed 24-hour schedule, Sunstar operates using flexible scheduling to match the supply of ambulances with changes in demands for service by time of day. Another significant operational difference between the fire districts and Sunstar appears in deployment strategies: the fire districts dispatch apparatus from fixed stations (static deployment) while Sunstar dispatches ambulances from variable locations (dynamic deployment) that change by time of day. The Pinellas EMS system obtains revenues from two primary sources: an EMS millage and the fees charged for transport of patients.

The fire agencies serving Pinellas County cover a vast range of district sizes. The four largest districts, St Petersburg, Clearwater, Largo, and Pinellas Park represent two thirds (66%) of all calls; the ten largest districts represent 90% of all calls. Deployment strategies that would match the staffing of units to call demand, termed peak load units (PLUs), are meaningful in only the large districts with a higher call volume.

IPS PROPOSAL SUMMARY

IPS Simulation —

Achieves Countywide response times targets
Decommissions 25 apparatus and 150+ firefighters
Has crew costs of $90.8 million
Incurs additional fleet operational costs of $5 million
Demonstrates reserve capacity in the system

The IPS Proposal maintains the administrative functions and infrastructure of the Pinellas County EMS system. Under this proposal, all 25 Rescue apparatus in the county are decommissioned. The medical first response function of these 25 Rescues is assumed by 72 Advanced Life Support (ALS) capable apparatus; 59 ALS capable apparatus already exist in the system and 13 more are obtained by upgrades to existing Basic Life Support (BLS) apparatus.

The IPS Proposal offers the option of decommissioning a complete category of apparatus. The count of apparatus decreases from 103 in the current system to 78. Unit hours among the fire districts decrease by 24% from 902,280 to 683,280. Decommissioning 25 Rescues decommissions 50 crew positions. These changes could affect 150+ firefighters. The mileage traveled by the decommissioned Rescues must be taken up by the heavier and more expensive Engines and Trucks, resulting in increased operational costs.

Comparing the IPS simulation to the Historic simulation reveals differences in response time patterns that are insignificant. The Historic CAD and Historic simulation show that the target response times are not met in all districts. Hits and misses occur, particularly among the 14 smallest districts representing only 10% of all calls.

In summary, the IPS proposal reduces personnel costs. Increased mileage on heavy apparatus increases operational costs. The net change is still a reduction of costs compared to the current system. The IPS Proposal decommissions 25 Rescues in a fleet of 103 apparatus, decreases unit hours by 24%, and, based on the simulation, the system still achieves its performance targets. In short, this model is theoretically achievable but lacks the realistic approach to make it implementable. Pinellas county fire and EMS are not in a state of disrepair that would require such a drastic cut. This finding serves as an operational definition of excess reserve capacity in the system. This finding is the most important single lesson to be learned from the IPS proposal.

SANFORD-MILLICAN PROPOSAL

The Sanford-Millican Proposal calls for a complete change in the structure of the Pinellas County EMS system. Sunstar is decommissioned and responsibility for medical transport is transferred to the 18 independent fire agencies. The structure of the resulting system does not conform to the requirements

of the County EMS Ordinance. Many of the consolidated administrative and infrastructure functions of the current system would be dispersed among the 18 independent fire agencies. For purposes of costing this proposal, *FITCH* assumed that the 18 fire districts would execute these previously consolidated functions at no increase in costs over the current system.

The Sanford-Millican Proposal, as presented, is silent regarding the stationing of apparatus and deployment strategies. *FITCH* engaged Lt. Sanford and Capt. Millican in direct discussions of these details so that the simulations would correctly reflect their vision of the proposal.

Simulation SM-1 Summary

Simulation Sanford-Millican-1 (SM-1) —

Achieves Countywide response times targets
Has crew costs of $110.8 million
Crew utilization levels are not safe to implement
New governance structure operationally difficult to implement

Comparing the SM-1 simulation to the Historic simulation reveals differences in response time patterns that are insignificant.

The critical failure of the SM-1 simulation is related to Unit Hour Utilizations (UhU). Under the SM-1 proposal, crew workloads on the medical transport units are at 62.18% (.62 UhU) for the 12-hour PLUs and 40.84% (.41 UhU) for the 24-hour Rescues. Both of these crew utilizations are considered unrealistically high and dangerous. The Pinellas County Fire Chiefs recommend that utilizations on 24-hour units not exceed 30% (.30 UhU)[1]. Even more stringent recommendations are made in a study by the International Association of Fire Chiefs detailed later in this report. The Pinellas EMS medical director has expressed strong concerns related to fatigue from long shift lengths and excessive unit hour utilization as a contributing factor in medical errors.

To reduce its costs, the Sanford-Millican Proposal intends to staff the 12-hour PLUs with “single-patch” personnel using ex-Sunstar EMTs and Paramedics hired at Sunstar rates. The 24-hour Rescues will be staffed with “double-patch” personnel using firefighter Paramedics hired at fire department rates. The new Rescues and PLUs will be stationed in particular cities, and the staffs will become new employees of those cities.

The personnel costs of SM-1 are almost equal to the personnel costs of the current system. This is a most curious outcome. In the current system, all of the positions on transport units are filled by lower cost Sunstar employees. In the SM-1 model, more than half of the positions on transport units are filled by higher cost fire department employees. Yet, the personnel cost of SM-1 is slightly less than in the

[1] Letter from Seminole City Manager Frank Edmunds to County manager Robert LaSala, May 6 2009, reference UhU Fire/EMS hybrid proposal.

current system. Reserve capacity already existing within the fire departments serves to internally subsidize the increased costs of using firefighters to staff medical transport units.

The same conclusion is reached considering unit hours. Decommissioning Sunstar transfers 297,000 unit hours of transport responsibility to the fire fleet, yet, the fire fleet needs to add only 163,000 unit hours to pick up this responsibility, implying that 134,000 unit hours exist within the current system as "excess reserve capacity," equivalent to approximately fifteen 24-hour apparatus. Even after the internal subsidy by the reserve capacity already in the system, SM-1 results in unrealistic workloads that could not be sustainably implemented in such a way as to capture the anticipated cost savings. SM-1 remains a theoretical model.

Simulation SM-2 Summary

Simulation Sanford-Millican-2 (SM-2) —

Achieves Countywide response times targets
Crew costs significantly more than other models: $120.9 million
Complies with utilization recommendations
New governance structure operationally difficult to implement

SM-1 should not be implemented because crew workloads are too high on the Rescues and PLUs conducting medical transport. SM-2 rectifies this issue by adding seven more 24-hour Rescues and 32 more 12-hour PLUs into the model in order to reduce workloads back to acceptable values; 24.00% (.24 UhU) on Rescues and 36.00% (.36 UhU) on PLUs.

Comparing the SM-2 simulation to the Historic Simulation reveals differences in response time patterns which are immaterial. To the extent that the performance in the Historic Simulation is deemed acceptable, then the same judgment needs be accorded to the performance of SM-2.

With the increased inventory of apparatus, the personnel costs of SM-2 are higher than in the SM-1 model, the current system, and the IPS model. It should be noted that with significant effort some unit hours could be reduced by having better experience and matching demand with tighter schedules. This would, however, be eroded over time as fixed schedules would eventually become part of the equation, removing the required flexibility to add resources ad hoc or as required on a day by day basis.

COMMUNITYWIDE ALIGNMENT OF RESOURCES FOR EFFICIENCY AND SERVICE (CARES) PLAN SUMMARY

Simulation CARES Plan (CARES-1) —

Achieves Countywide response times targets
Crew costs are less than current system: $105.7 million
Retains a balanced inventory of apparatus – matched to call demand
Utilizes current governance structure

The IPS and SM Proposals represent the extremes in the continuum of possible approaches to make the system more efficient. To develop a third approach, the Consultants considered multiple stakeholder ideas, including "hybrid" models. It was a difficult task given the core mandate not to negatively impact clinical or other service levels. The Consultants balanced the risk of change with economic value obtained and utilized an intermediate approach, elaborated below, as the Communitywide Alignment of Resources for Efficiency and Service (CARES) Plan. The CARES Plan maintains the current administrative functions and infrastructure of the Pinellas County EMS system.

When looking at the Sanford-Millican models, it was noted that the demand for service dropped significantly through the night hours and that in the current system there was overstaffing in these hours. Thus, 19 stations were identified that required multiple fire apparatus for coverage during daylight hours and required fewer apparatus for coverage during nighttime hours. Apparatus, particularly Rescues, in these stations were realigned from 24-hour units to 14-hour PLUs.

Medical Priority Dispatch (MPDS) protocols are recognized worldwide as a clinically appropriate mechanism to facilitate assigning the correct resource and response priorities for medical calls. Each 911 call received does not require a response by both fire first agency and transport ambulance units. The county has taken steps to reduce multiple agency responses to low acuity calls. The fire departments expressed concern about reducing their first response role. While such a change is clinically appropriate, fire agencies feared it would negatively impact perceptions of FD service in the individual communities. The CARES model continues to utilize fire units to first respond to all medical calls. Fire becomes the primary responder on lower acuity calls significantly reducing the number of assignments to which the transport system responds.

FITCH recognized that since the FD currently responds to lower acuity calls and an FD role reduction on these calls did not translate into any demonstrative cost savings, *FITCH* therefore opted to maintain the FD role and community involvement on these calls while potentially better positioning the system under a future accountable healthcare delivery model.

The personnel costs of the CARES plan are less than the current system, but more than the IPS Proposal.

COMPARISONS OF PROPOSALS

These four tables provide side-by-side presentations of apparatus, Countywide response times for Fire Emergency Medical and Fire Emergency Other calls, and personnel costs between the four proposals.

Table 1. Inventory of Apparatus Required in Each Proposal

Apparatus Count 24-Hour Units	Historic Simulation	IPS-1	SM-1	SM-2	CARES-1
Engines	51	51	51	51	51
Trucks	19	19	19	19	18
Squads	8	8	8	8	5
Rescues	25	0	36	43	11
Totals	**103**	**78**	**114**	**121**	**85**
Peak Load Units	**0**	**0**	**16 12-hour PLU's**	**48 12-hour PLU's**	**19 14-hour PLU's**

Table 2. Comparison of Countywide Response Times on Fire Emergency Medical Calls between Proposals

Pinellas County	Fire Emergency Medical [min:sec] @ 90%				
	HIS-1	IPS-1	SM-1	SM-2	CARES-1
[min:sec] @ 90%	7:12	7:24	6:34	6:16	7:15
Change from HIS-1		+12 sec	-38 sec	-56 sec	+3 sec
%-tile @ 7:30	91.92%	90.75%	95.73%	97.13%	91.66%
Change from HIS-1		-1.17%	3.81%	5.21%	-0.26%

Table 3. Comparison of Countywide Response Times on Fire Emergency Other Calls between Proposals

Pinellas County	Fire Emergency Other [min:sec] @ 90%				
	HIS-1	IPS-1	SM-1	SM-2	CARES-1
[min:sec] @ 90%	6:52	7:07	6:36	6:39	6:56
Change from HIS-1		+15 sec	-16 sec	-13 sec	+ 4 sec
%-tile @ 7:30	93.63%	92.37%	93.84%	94.50%	93.22%
Change from HIS-1		-1.26%	0.21%	0.87%	-0.41%

Table 4. Comparison of Crew Costs between Proposals

Major Costs Items [$$ Millions]	HIS-1[2]	IPS-1	SM-1[1,2]	SM-2[1,2]	CARES-1
Fire Agencies	$99.1	$77.9	$110.8	$120.9	$92.8
Sunstar	$12.9	$12.9	$0.0	$0.0	$12.9
Subtotal	**$112.0**	**$90.8**	**$110.8**	**$120.9**	**$105.7**
Fleet Ops Costs	$0.0	$4.9	$0.0	$0.0	$0.0
Total	**$112.0**	**$95.7**	**$110.8**	**$120.9**	**105.7**
Change	**$0.0**	**-$16.3**	**-$1.2**	**+$8.9**	**-$6.3**

Note 1: Assumes single patch (non-firefighter) crews on the PLU's at Sunstar pay rates.

Note 2: The expected premium pay of 5% [3] for FF EMT's and paramedics on transport duty is not included in the SM-1 or SM-2 crew costs above.

The IPS Proposal incurs material and significant increases in fleet operating costs due to the use of heavy fire apparatus in place of lighter weight rescue units. Increased fleet costs are noted in a separate line in the table and included in the IPS Proposal total.

The changes in personnel costs, shown in Table 4 above, specifically accrue to the fire districts. The distribution of these changes across the districts will not be uniform. The extent to which any of these changes flow through to the County is a matter of policy decisions at the County level of governance.

A number of regional enhanced service opportunities, including community paramedicine outreach programs are detailed in this report. Among them are services that could address special response needs and additional support for hard-to-serve areas. Such services could potentially be funded or partially funded by applying the cost savings which are detailed in the report.

Achieving cost savings while maintaining service levels from any course of action is the short-term goal of the recommendations made. The report provides a positive framework for thoughtful dialogue between the County and its EMS partners to address achieving potential savings, timing of implementation of the selected model and any subsequent potential long-term service enhancements noted.

[3] Letter Seminole City Manager Frank Edmunds to County manager Robert LaSala, May 6 2009, reference UhU in Fire/EMS hybrid proposal.

SUMMARY

Determining how and by whom Emergency Medical Services should be provided has been a historically contentious issue in Pinellas County. The *FITCH* consulting process was designed with high levels of transparency and stakeholder engagement. Each of the proposed models was objectively analyzed in a manner to ensure they achieve current response time performance levels and allow a reasonable comparison of costs. *FITCH* strongly suggest that this world class system not be fundamentally altered but rather tweaked in a way that maintains the system strength, positions the system for the future and reduces cost based on excess capacity. The Consultants acknowledge the professionalism and dedicated involvement of leaders from each fire agency, Sunstar and the County Department of Public Safety Services throughout the process leading to this report.

INTRODUCTION

The Pinellas County Emergency Medical Services (EMS) system is unique from both an operational and financial perspective. It integrates public and private sector response organizations to serve a large, densely populated geographic area on Florida's central Gulf coast. Revenues derived from the private, for-profit ambulance transport entity funds ambulance operations and system enhancements and are coupled with EMS restricted special tax revenues to fund advanced life support fire first response efforts. Both the ambulance provider and fire agencies operate in conformance with performance based contracts.

The Pinellas County EMS system is a sophisticated emergency medical service and fire first response model. It represents one of the most effective patient-centric systems in the United States today. The system delivers advanced care life support to the citizens of Pinellas County through both the fire first responders and the ambulance transport company.

In recent years, declining property values negatively impacted the County's EMS tax revenues. The system weathered the economic downturn by drawing on reserve funds that had accumulated under a best practice reserve policy. As a result of concerns about the system's long-range economic health, several proposals were brought forward that would materially change its operational foundation and financial structure.

Fitch & Associates ("*FITCH*" or "The Consultant") was engaged by Pinellas County perform an in- depth review of two such proposals and, through computer simulation, to model the impacts and outcomes of the proposed changes. *FITCH* also was asked to develop an operational model based on its experience that would improve efficiencies in the system while maintaining system performance. The project utilized computer simulation software and expertise provided by the Optima Corporation. The County asked that system stakeholders at all levels be thoroughly engaged in the simulation processes as the project moved forward.

The project scope undertaken by *FITCH* focuses on performance, efficiencies and costs. Issues related to future system funding were not within the project scope. The three proposals/models that were utilized for the simulations are summarized below.

INTEGRATED PERFORMANCE SOLUTIONS PROPOSAL (IPS PROPOSAL)

Findings, Analysis and Recommendations for the Pinellas County EMS System was presented to the Pinellas Board of County Commissioners on October 11, 2011 by Integrated Performance Solutions of Wilmington, NC. The distinguishing points of this proposal are to effectively remove 25 fire department Rescue vehicles currently in the system and to replace their functions by using 72 rescue-capable engines.

SANFORD-MILLICAN PROPOSAL (SM PROPOSAL)

Pinellas County Emergency Medical Service Providers Cost Containment and Sustainability Model was presented to the Board of County Commissioners in July 2011 by Lt. Scott Sanford, Palm Harbor Fire Rescue, and Capt. James Millican, Lealman Fire Rescue. The distinguishing points of this proposal are to remove Sunstar as the private contractor for medical transports and to have the 18 fire agencies handle all calls for medical first response (MFR) as well as emergency medical and inter-facility patient transports. Medical calls are to be dispatched according to ProQA/Medical Priority Dispatch System (MPDS) determinants.

COMMUNITY-WIDE ALIGNMENT OF RESOURCES FOR EFFICIENCY AND SERVICE (CARES) PLAN FOR THE PINELLAS EMS SYSTEM

FITCH was to use its professional judgment to identify a third approach and provide a simulation based on that model. A number of ideas and options were considered including various "hybrid" approaches. There were several fundamental issues that quickly became apparent with the hybrid models. One suggestion involved the fire departments providing emergency transport functions and Sunstar being responsible for the provision of non-emergency transports. In such an approach the system exchanges low cost wages for high cost wages on the emergency side, which increases the cost of delivering the service and creates two functional streams within the system. Other "hybrid" suggestions such as allowing the existing rescue vehicles to transport were also initially considered. The rescue transport approach adds complexity and expense, as the system would have to hive off areas that have rescues from the areas that do not. The number and complexity of possible configurations is staggering and underscores the potential difficulty ensuring quality service and reducing costs if the system becomes fragmented. [4]

Upon reflection, all of the difficulties with governance, accountability, and logistics that apply to the Sanford-Millican Proposals were seen to apply equally to any and all possible hybrid systems. Consequently, in our professional judgment the best opportunity to operationalize a model to reduce costs without compromising quality or service could be found in an optimized version of the existing system that focused on more efficient operations.

In the CARES model, optimization is to achieve response times equal to those currently experienced in each Fire/EMS District; to increase efficiency by taking into account both temporal and geographic variations in demand; to avoid duplication of resources on low acuity calls, and to avoid dispatch of transport resources to those calls that are unlikely to require transport.

[4] Considering each potential system configuration in which the 18 cities/districts reorganize transport and non-transport (e.g. emergency only, both emergency and non-emergency, some elect to transport and others do not) becomes a confounding, complex, set of permutations.

In all transformations of the system, attention must be paid to unanticipated impacts of removing or changing resources at different hours of the day. It is the responsibility of the implementation team to assure that no significant or negative effects occur due to a reduction of unit hours at night.

The comparisons between the proposals are to be based on simulations using Optima Predict®, a software package specifically developed for the emergency services industry by the Optima Corporation, Auckland, New Zealand. It is utilized by major EMS systems worldwide. The most important results coming out of these simulations will be compliance with targets for response times, the inventory of apparatus required to achieve this compliance, and the number of unit hours required to achieve this compliance. The required unit hours will be used to build cost models of the various proposals. In turn, models of performance will be juxtaposed against models of costs to show the cost-performance trade-offs inherent in each proposal.

PROJECT METHODOLOGY

The following section outlines the methodology utilized for stakeholder engagement, the methodology to determine projected costs and a detailed description of the simulation methodology utilized.

STAKEHOLDER ENGAGEMENT

Over the course of the project, The Consultants and Pinellas Public Safety Services staff maintained ongoing communications through regular update reports and bi-weekly conference calls. Area Fire Chiefs, in particular, were engaged throughout the project. Fire Chiefs responded to two online surveys that gathered information about proposal implementation attributes.

Stakeholder groups that were interviewed or attended meetings are listed below in no particular order.

- Pinellas County elected and appointed officials
- City and Fire District Managers
- Fire Chiefs
- Pinellas County staff
- Lieutenant Scott Sanford and Captain James Millican
- Fire Union Labor Leaders and Representatives
- EMS Advisory Council
- Hospital Administrators
- Medical Control Board
- Medical Director
- Sunstar Management and staff
- State elected officials

Consultants were on-site at least once each month and often more than once a month for the duration of the project.

FINANCIAL ASSUMPTIONS

One purpose of this report is to objectively compare the costs of the IPS and Sanford-Millican Proposals, along with a newly developed CARES model for Pinellas County fire and EMS services. During simulation processes, Sanford-Millican was amended to two separate deployment models so that there are now four models to be compared for costing purposes.

A typical approach to comparing proposals is based on the concepts of cost-performance analysis. In such comparisons, a change in performance is designed into the system, which results in a change in the cost of the system. In applying this method, rational comparisons between proposals are based on changes to the cost-performance ratios.

Comparing cost-performance ratios sounds straightforward on paper. In reality, these comparisons become very subjective and non-quantitative. Cost is easily quantified: the metric being dollars. Performance values are subjective and not easily quantified. When seven seconds is shaved off of a 7:30 response time, how many dollars should go towards buying this increased performance? This question does not lend itself to an easy quantitative answer.

In keeping with the County's directives to *FITCH*, comparisons designed into this report are conducted such that resources allocated to each proposal are adjusted to provide the ***same*** level of emergency medical and fire service performance in each case. Approaching the comparisons from this direction has the powerful virtue of avoiding subjective judgments regarding the dollar value of specific changes in performance. A change in resources between proposals results in a quantifiable change in cost, **but results in no change in performance**. Proposals can then be compared based solely on **differences** in cost.

Focusing on **differences** allows the calculation to be simplified. To arrive at an answer when looking at differences in costs, it is not necessary to calculate all the cost items of a proposal. It is only necessary to calculate those cost items that *change*.

If a cost item is common to two proposals, that cost item becomes neutral when the costs of the two proposals are subtracted from each other. This in no way denigrates the importance of the common functions, but rather holds constant the costs of those functions that are deemed common in the four models. The implication of this point is that common cost items add nothing to the validity of the comparison between the proposals.

It is implicit that different organizations will manage some of the administrative practices differently, but at this point any function that cannot be affirmatively substantiated by all stakeholders as different from one model to the other is not considered in this exercise.

Therefore, the costs associated with functions of governance, accountability and logistics as described in a later section of this report were assumed not to vary from one model to the other. There remain real challenges specifically for implementation of the Sanford-Millican models that some would argue could significantly increase administrative and coordination costs among the 18 independent agencies. But again, costing for comparison purposes will focus on the single dominant cost in EMS and fire organizations — that of the cost to staff response units.

SIMULATION METHODOLOGY

Before running simulations of the proposals, the Optima Predict® software was first used to simulate the current operations in Pinellas County, integrating the operations of the fire agencies and Sunstar. This first simulation is referred to as the Historic Simulation, HIS-1. It was conducted to "tune" the Optima Predict® software to incorporate the physical realities of the Pinellas County environment. To this end,

the historical list of calls, the historical travel times from AVL/GPS data for each call, and historic response times were taken from the period October 1, 2010 through September 30, 2011.

"Tuning" the model involves adjusting parameters in the Optima Predict® software so that simulation results satisfactorily match the historic results. Tuning proceeds in two stages: First, tuning the representation of the road network and then tuning the representation of the operations.

This methodology is a rigorous approach to simulating travel times. Tuning the representation of the road network matched the simulated travel times with that of the historic travel times throughout Pinellas County. The process resulted in a mathematical model to capture estimates of road speed for both normal travel and lights-and-sirens travel for each road segment, for different days of the week, and for different times of the day. The purpose for creating the road network model was to provide realistic estimates of travel times when evaluating trip routes outside the historical record. Tuning Pinellas' operations allowed *FITCH* to incorporate dispatch logic and operational rules, including enroute diversion strategies.

The Historic Simulation steps through each call in the historic call set over the October 1, 2010 to September 30, 2011 period of fiscal year 2010-2011 (FY10-11). The simulation assigns responses using the dispatch logic and operational rules that approximate the behavior of the Pinellas medical first response (MFR), fire suppression, and ambulance operations. Apparatus then travels across the mathematical model of the road network. When the performance seen in the simulation closely matches the performance seen in the historical record, the model of the road network, the dispatch logic and operational rules embedded in the software are assumed to correctly reflect reality.

Running a simulation of a proposal requires three main steps:

Specify the inventory of apparatus and stations to be used in the proposal.
Specify the crew duty schedule for the proposal: 24-hour unit,
12-hour peak load unit, PLU, or 14-hour PLU.
Specify the dispatch logic to be applied to calls in the proposal.

The Optima Predict® software is a discrete event simulator. This means that each call from the historic list of calls is individually fed to the simulator at a "simulation time" that corresponds to the actual date and time of that call.

The software then applies the dispatch logic embedded in the proposal to the call and dispatches a specific piece of apparatus to respond to the call. The piece of apparatus dispatched by the software may or may not be the same as the apparatus dispatched in the historic record because the historic apparatus may not exist in the proposal.

The apparatus travels from its starting point to the site of the call over the mathematical model of the road network developed during the "tuning" process, thus logging an en route time. The apparatus arrives on site, logs a response time, services the incident, and then returns to its starting point. Return

travel is also over the mathematical model of the road network, thus incurring another travel time. Time stamps are assigned to each of the time intervals comprising this whole process.

The next call from the historic list of calls is fed to the simulator at a "simulation time" that corresponds to the actual date and time of this second call. Calls being fed to the simulator overlap just as they do in the real world. After all of the calls in the historic list of calls have been fed to the simulator, all of the time stamped intervals are assembled, and performance and fleet statistics for the proposal are tallied.

Methodology Applied to Sanford-Millican Proposal

The Sanford-Millican Proposal as presented did not include deployment plans or simulations to validate performance. Lt. Sanford and Capt. Millican relied on their intuitive understanding of operations occurring in Pinellas County for guidance. As a component of this project, *FITCH* conducted rigorous simulations of the Sanford-Millican proposal. In hindsight, Lt. Sanford's and Capt. Millican's intuitions were very close to the mark when judged only on the performance outcomes of their proposal.

Methodology Applied to Integrated Performance Solutions Proposal

To provide clarity regarding simulation processes, the Optima Predict® methodology needs to be contrasted to the methodology used by IPS in their simulations. The Optima Predict® software is a discrete-event simulator. The demands for service input into the Optima Predict® software are the actual demands for service present in the historic record. Dispatch time intervals and chute time intervals are those intervals present in the historic record for a specific call.

The IPS approach to simulations was based on queuing theory and a Hypercube Approximation Model, as used by Dr. Jeff Goldberg at the University of Arizona. To implement this model, Pinellas County was partitioned into zones and the zone location of each vehicle station was set. In each zone, historic data was used to calculate a temporal and geographic distribution function for calls ringing into the system, a distribution function for dispatch time intervals, and a distribution function for chute time intervals.

These distribution functions were fed to a general purpose systems simulator as *inputs*. Response times were simulated by adding a drive time interval to these distributions. Drive time intervals were calculated by assigning a single road speed to all travel, regardless of the acuity determinant (lights and sirens or not), regardless of the specific road segments required by the route, regardless of day of week and regardless of time of day.

The use of a distribution function to simulate calls ringing into a zone is a good approximation of reality when the number of calls is high. This condition probably holds true for large districts such as the City of St. Petersburg. The use of distribution functions likely fails for the small districts where the numbers of calls are low. This is not a serious criticism because the districts are small and have a small impact on overall performance within the County.

The two most serious criticism of the IPS approach to simulations in Pinellas County is the use of a single road speed to derive all travel times. The drive time interval is the largest contributor to response time (unit available for dispatch to first arrival) and total response time (call ring-in to first arrival). It is poorly represented in the IPS simulations. The second is that it results in a very difficult if not impossible plan to execute, thus making this model a theoretical model and not a realistic model.

IMPLEMENTING MODELS

Once the Historic Simulation was tuned, scenarios corresponding to the various proposals were created by adjusting the operational environment in the Historic Simulation by adjusting the inventory of apparatus and stations in the system, by adjusting the duty schedules of the crews, and by adjusting the dispatch logic. The historic list of calls was then fed to the simulation software under these "what-if" adjustments. The results of the simulation for the scenario indicate whether the adjustments have a negative or positive impact on the performance of the operation, and whether that impact is small or large.

INTERPRETING RESULTS OF OPTIMA SIMULATIONS

The simulation model is not expected to provide the exact results that would be seen in reality and, therefore, simulations of proposals are always compared to the Historic Simulation rather than to the Historic CAD data. This approach ensures that any approximations made within the simulations are consistently accounted for when comparing proposals. The value of the simulation approach is that it provides the ability to generate operational evidence for strategic decisions. This evidence can be used to build compelling business cases for operational changes and to objectively evaluate alternative proposals.

PINELLAS COUNTY EMS SYSTEM DESCRIPTION

BACKGROUND

The County's EMS system is framed by a Special Act of the Florida Legislature (Chapter 80-585) that created the Pinellas County EMS Authority in 1980. The Authority is governed by the Pinellas County Board of County Commissioners acting as the Authority. As a result of the Special Act, a countywide tax was passed and implemented. Those revenues are dedicated to the provision of emergency medical services and have been specifically used to fund advanced life support (ALS) first response services provided by area fire departments and fire districts.

The system today operates with a consolidated 911 dispatch and communications center, and consolidated medical direction and quality improvement functions. Periodically, the Authority conducts a competitive proposal process to choose one entity to provide emergency and non-emergency ambulance response and transport countywide. That entity is awarded a Certificate of Public Convenience and Necessity (COPCN) that provides for exclusive rights to handle emergency and non-emergency/interfacility medical calls in Pinellas County and operates under the County's trade name, Sunstar Paramedics.

Within the County there are 24 municipalities and 18 fire service agencies. Pinellas County Public Safety Services Department provides coordination between the fire services and the ambulance contractor and provides administrative support that includes billing and collection services and management of system finances. Other essential components of the Pinellas system governance are:

- The Medical Control Board, an 11-member board consisting of emergency physicians and hospital administrators that are appointed by the Authority,
- The EMS Advisory Council, a group of 24 interested citizens, elected officials and system providers, appointed by the Authority,
- The system Medical Director who is contracted by the Authority to provide clinical oversight and leadership to the entire system and all EMS providers.

The County, as the Authority, has responsibility for various functions that are central to the overall infrastructure of the system. These functions include:

- Provision of communications infrastructure through the Pinellas County Communications Center that includes among other items, the transfer of 911 data from the Center to the Ambulance Contractor, links the Contractor's Computer Aided Dispatch (CAD) and the Authority's Ambulance Billing System
- Contracting for Continuing Medical Education for paramedics and EMTs in the system to meet educational requirements for recertification

The Pinellas County EMS system is a sophisticated emergency medical service and "fire first" response model. This system, which has been in place for over two decades, represents one of the most effective

patient centric systems in the United States today. The system delivers advanced care life support to the citizens of Pinellas County through both the fire first responders and the ambulance transport company.

Through the years, many questions surrounding funding and sustainability have been raised. As noted above, the County, through legislation, is responsible for providing emergency medical services to every citizen of the County. It has chosen to do so by using a mix of private ambulance transport with fire medical first response, and subsidizing fire departments for medical first response. The subsidy to fire departments is codified in a contract between the County and the 18 fire agencies. The amount of the subsidy has changed in recent years and is now based on a portion of the actual costs of fire agencies incur for paramedic level response. Subsidies to fire agencies are derived from the EMS millage tax levy. Ambulance transport fees support Sunstar ambulance operations and over the years have contributed to a "system" reserve fund.

DISPATCH

The Pinellas County Communications Center is the only 911 center in the County, making it the primary public safety answering point (PSAP). It provides three secondary PSAP functions. On ring-in, a call is first classified needing medical, fire, or police attention. The following pathways are then taken:

- Medical ring-ins are further queried to assign the primary determinant code. This assignment determines an ambulance or medical first response. MFR units are dispatched directly. Calls requiring only an ambulance response are electronically transferred to the EMS Communications Center operated by the ambulance contractor.
- Fire ring-ins are further queried. Fire apparatus is dispatch based a fire priority dispatch system.
- Police ring-ins are further queried to determine jurisdiction and exception triage. The call is transferred to that jurisdiction for police dispatch. Simultaneous dispatch of medical or fire resources occurs depending on the exception triage.

The flow of an emergency call ringing through this complex decision tree is supported by a Bell Atlantic Public Sector Systems computer aided dispatch system (CAD) which is completely supported by County staff. This CAD is unique to Pinellas County. Years ago, the County bought the source code for the computer aided dispatch system and hired specialized programmers to support the CAD system. Over the years, they have upgraded and embellished the CAD to be competitive with any new commercial CAD on the market today. The customized CAD is called CORE (CAD On Demand Reporting e-technology). The County has four information technology staff members dedicated to supporting operational technologies. Two of them are specifically dedicated to the CAD. The ability to modify the CAD and make those additions deemed valuable significantly contributes to the proper functioning of the dispatch center. It has been the experience of *FITCH* that the ability to customize a CAD using an in-house Information Technology (IT) staff is often more cost effective than purchasing an off-the-shelf CAD with system support.

Call Prioritization and MPDS

Current protocols at the Pinellas County Communications Center make limited use of the Medical Priority Dispatch System (MPDS) to assign determinants to calls. MDPS is a comprehensive best practices system supported by the International Academies of Emergency Dispatch. MPDS employs rigorously tested protocols for handling emergency calls to 911 and includes quality assurance and protocol compliance components. The use of MPDS is frequently described as a form of malpractice insurance.

Although the Pinellas Communications Centers assigns call determinants, this categorization does not translate to prioritization. The distribution of calls by ProQA determinants are shown is Figure 1, below. In current practice, this assignment of determinants (categorization) does not translate to a differentiation of resources assigned to the call. Almost every request for emergency medical service results in dispatch of an ambulance **and** a fire department MFR unit. Such actions do not conform to the recommendations made by the International Academies of Emergency Dispatch for the prioritization of calls.

Figure 1, below, shows the distribution of total calls by ProQA™ determinants. ProQA™ determinants were available only in the Fire CAD data set. Calls classified as "NA" include Fire calls with a missing or incomplete ProQA code plus ambulance calls with a Sunstar Priority 1 code.

Figure 1. Distribution of Total Calls by ProQA™ Determinants

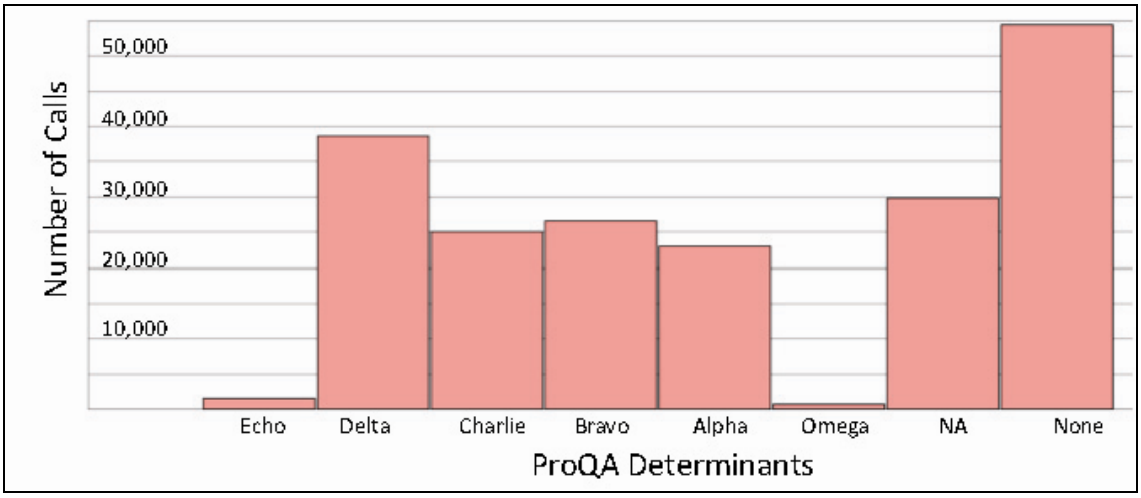


Figure 1 reflects the relative proportion of life threatening calls, Echo, Delta, & Charlie determinants, relative to total calls in the system. The Echo, Delta, & Charlie determinants warrant a lights and sirens response with simultaneous dispatch of an ambulance. The remainder of the determinants warrants normal speed responses. Many of them will not even require dispatch of an ambulance. ProQA classification associates with these determinants and their dispatch logic are detailed in the section on simulations of the Sanford-Millican Proposal.

The distinction between categorization and prioritization is perhaps the most misunderstood concept in EMS. The notion of applying a medical protocol to triage callers means that callers will be categorized according to symptomology. Categorization is a first step towards executing a priority according to the dispatch logic and business rules used by a particular system. Where in the queue does a call go? Is an advanced life support (ALS) or basic life support (BLS) unit assigned to the call? Does the unit drive hot (lights and sirens) or cold? While the International Academies of Emergency Dispatch dictates the assignment of determinants and the categorization process, it makes only recommendations on the priority and what resources should attend the priority.

The local system has complete discretion in decisions regarding priority. Three principal concepts are at play with the assignment of resources to a priority:

1. Need: in certain medical emergencies there is an improvement in clinical outcomes when resources arrive as quickly as possible to stabilize the patient.
2. Risk: emergency vehicles driving lights and sirens are significantly more at risk for an accident then vehicles not driving lights and sirens. Driving hot (lights and sirens) places the general population at risk. Ethically, this is an uninformed risk imposed on the general population that must be balanced against a real clinical benefit to the patient. Without a clinical benefit to the patient, there is no justification for imposing the risk.
3. Cost: there are costs incurred that yield improved clinical outcomes; there are other costs that yield no improvements.

Dispatch Accreditation

The EMS Communication Center, Sunstar's dispatch center, has been accredited and continues to be accredited to the standards of the International Academies of Emergency Dispatch (IAED). Approximately five years ago, the Sunstar EMS Communication Center stopped doing medical triage and handed that responsibility back to the Pinellas County Communications Center.

The County has expressed to the Consultant that it intends to make a transition to using dispatch logic based on ProQA™ and Medical Priority Dispatch System™ determinants. ProQA™ is an expert system software package for emergency medical dispatch. It is based on the Medical Priority Dispatch System™ (MPDS) and provides a standardized format for carrying out the practice of priority dispatching. It is an automated system which operates by evaluating incoming information about patient status and scene conditions according to logical rules built on expert medical knowledge.

FITCH recommends that if County Communications makes this transition, they should strive to become extremely proficient in the protocols as demonstrated by achieving accreditation from the IAED. The IAED sets minimum standards for emergency medical dispatcher (EMD) certification, as well as standards for dispatch center accreditation. IAED provides separate accreditation processes for medical, fire and police dispatching. Requirements for ACE Accreditation are comprehensive and reflect the

effort required to achieve and maintain accreditation. Even for the best dispatch centers, accreditation is typically a multi-year process.

Table 5 below presents twenty points of excellence that must be formally documented and verified as part of the IAED accreditation process.

Table 5. Requirements for IAED Dispatch Center Accreditation[5]

Formally describe and document the following.
1. All medical dispatch call-taking, dispatching and supervisory workstations.
2. Current Advanced Medical Priority Dispatch System (MPDS) licensing of each EMD position.
3. Current Academy certification of all EMD personnel.
4. How Academy certifications and case review will continue to be maintained.
5. Full activity of Quality Improvement (QI) committee processes.
6. EMD quality assurance and improvement methodology.
7. Case review at the Academy's recommended number and percentage of randomly reviewed cases.
8. EMD quality assurance and improvement database.
9. Consistent, cumulative MPDS case review at or above the following percentages: 95% - Case Entry protocol compliance; 95% - Chief Complaint selection accuracy; 90% - Key question protocol compliance; 90% - Post dispatch instruction protocol compliance; 95% Pre-arrival instruction protocol compliance; 90% - final code selection accuracy; 90% - cumulative overall score
10. Correct case review and QI procedures validated through independent Academy review.
11. How EMS field personnel were oriented to the proper use of the MPDS and feedback report.
12. Local policies and procedures for implementation and maintenance of the EMS program.
13. Current Continuing Dispatch Education (CDE) and EMD recertification program functions.
14. How police and fire dispatchers were oriented to the proper use of MPDS (S.E.N.D. protocol).
15. Properly established local configuration of all MPDS response assignments.
16. How MPDS response assignments will be regularly reviewed and recommended changes approved.
17. Incidence of all MPDS codes and levels.
18. Specific medical director oversight and involvement in EMD activities.
19. Sharing of non-confidential data with the Academy.
20. Support of the Academy's Code of Ethics and practice standards.

Accreditation requires top-notch systems, reporting and processes. Accreditation ultimately benefits patients and the community-at-large. While the Pinellas County Communications Center follows many of the accreditation standards policies and processes, it would be in the best interest of the County to pursue and achieve accreditation status. This is particularly important as a liability mitigation tool if the County wants to pursue proposals that rely on the medical priority dispatch system to choose to assign

[5] International Academies of Emergency Dispatch, Twenty Points of Accreditation Excellence, www.emergencydispatch.org.

or not assign specific resources to calls. Achieving accreditation means that IAED, a third-party agency, has stated that the dispatch center has met and continues to meet the highest standards of triage protocols.

FITCH has reviewed the Pinellas County Communications Center's quality assurance protocol and is of the opinion that it is robust and prepares the Communications Center for accreditation by IAED in the future.

HISTORIC PERFORMANCE FROM CAD

Table 6 presents data extracted from the Pinellas County's CAD system showing the number of calls to the fire services for the period October 1, 2010 through September 30, 2011 by type and district. A full series of high resolution maps based on these data were developed as part of the project and have been provided under separate cover to the County. The key elements of the table below are:

1) The total call volume is used to calculate workload in all the simulations and is within a few hundred calls of the county reported number
2) Performance for the fire department is based on:
    a. Fire emergency other calls: is measured as the percentage of Fire CAD calls, with priorities other than 'F1 – Medical', historically not downgraded, where a Fire vehicle arrived at scene within 7.5 minutes of the Available for Dispatch time.
    b. Fire emergency medical calls: is measured as the percentage of calls with Fire priority 'F1 – Medical', historically not downgraded, where a Fire Rescue or Rescue capable vehicle arrived at scene within 7.5 minutes of the Available for Dispatch time.

As a result, when looking at total incident volume in the simulation reporting, the following will not be reflected in the Fire Medical or Fire Emergency Other call totals:

- Canceled Calls
- Downgraded Calls
- Calls for which vehicle responded based upon a capability other than Rescue, Engine, Truck or Squad.

It is common practice to focus response times on the first unit arrived on scene and on commonly used emergency call types. This was done with this data set and only the calls that impact performance are referenced in subsequent tables, it is important to note that the workload always remains based on total calls.

Table 6. Total Calls to Fire Services for FY10-11 by Type and District

Fire District	Total Calls	Fire Emergency Other	Fire Emergency Medical	Cancelled orDowngraded	% Cancelled/ Downgraded
St. Petersburg	47,084	7,619	27,083	12,382	26.3%
Clearwater	24,602	3,919	14,482	6,201	25.2%
Largo	19,993	2,493	12,642	4,858	24.3%
Pinellas Park	14,063	2,314	8,174	3,575	25.4%
Seminole	10,025	1,533	6,062	2,430	24.2%
Lealman	7,353	1,051	4,404	1,898	25.8%
Palm Harbor	7,225	884	4,456	1,885	26.1%
Dunedin	6,246	785	3,794	1,667	26.7%
Tarpon Springs	3,763	663	2,183	917	24.4%
South Pasadena	2,348	229	1,495	624	26.6%
Safety Harbor	2,318	375	1,432	511	22.0%
East Lake	2,228	373	1,278	577	25.9%
Gulfport	2,036	405	1,097	534	26.2%
St. Pete Beach	1,908	279	1,200	429	22.5%
Pinellas Suncoast	1,802	320	977	505	28.0%
Oldsmar	1,645	312	919	414	25.2%
Treasure Island	1,254	220	712	322	25.7%
Madeira Beach	1,108	199	598	311	28.1%
Redington Beach	685	111	384	190	27.7%
Belleair	592	110	376	106	17.9%
Belleair Bluffs	526	88	306	132	25.1%
Tierra Verde	311	64	168	79	25.4%
Fort Desoto Park	140	24	68	48	34.3%
Oldsmar Contract	8	1	4	3	37.5%
Pinellas County	**159,263**	**24,371**	**94,294**	**40,598**	**25.5%**

In order to present perspective on the disparate sizes of the districts comprising Pinellas County, Table 7, below, presents the distribution of emergency medical calls in the 24 districts in the CAD in order of decreasing call count. The significant observation is that the three largest cities, St. Petersburg, Clearwater, and Largo, by themselves, account for more than half of all emergency medical activity. The fourteen smallest districts account for only 10% of these calls.

Table 7. Fire Emergency Medical Calls by District for FY2010-11[6]

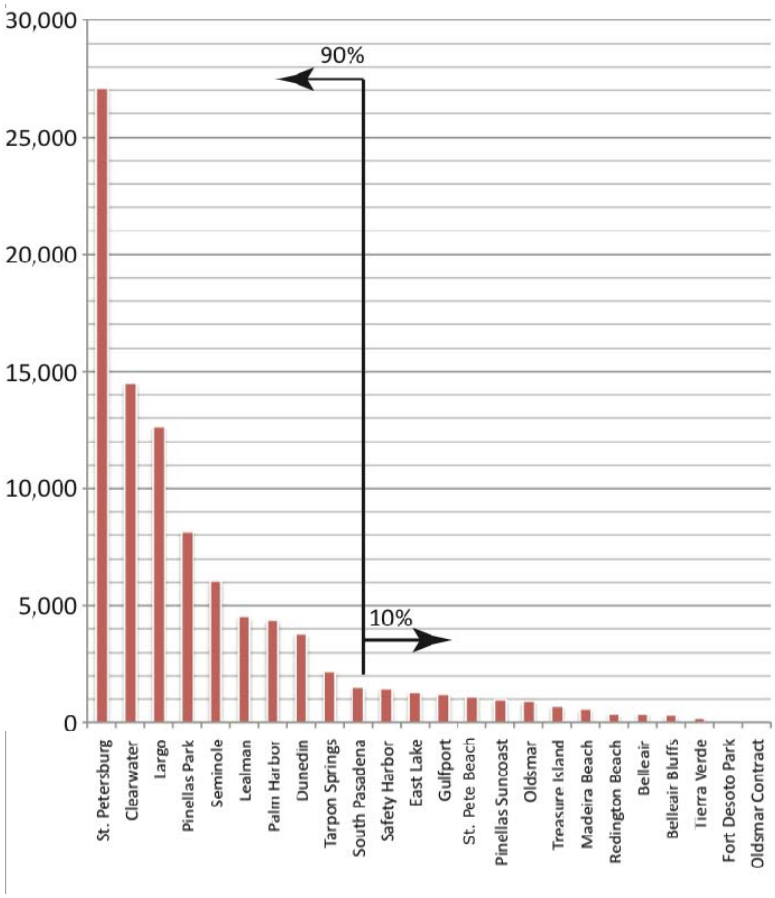
Fire District	Call Count	% of Total	Cumulative %
St. Petersburg	27,083	28.7%	28.7%
Clearwater	14,482	15.3%	44.0%
Largo	12,642	13.4%	57.4%
Pinellas Park	8,174	8.7%	***66.1%***
Seminole	6,062	6.4%	72.5%
Lealman	4,456	4.8%	77.3%
Palm Harbor	4,404	4.7%	82.0%
Dunedin	3,794	4.0%	86.0%
Tarpon Springs	2,183	2.3%	88.3%
South Pasadena	1,495	1.6%	***89.9%***
Safety Harbor	1,432	1.5%	91.4%
East Lake	1,278	1.4%	92.8%
Gulfport	1,200	1.3%	94.1%
St. Pete Beach	1,097	1.2%	95.2%
Pinellas Suncoast	977	1.0%	96.3%
Oldsmar	919	1.0%	97.2%
Treasure Island	712	0.8%	98.0%
Madeira Beach	598	0.6%	98.6%
Redington Beach	384	0.4%	99.0%
Belleair	376	0.4%	99.4%
Belleair Bluffs	306	0.3%	99.7%
Tierra Verde	168	0.2%	99.9%
Fort Desoto Park	68	0.1%	100.0%
Oldsmar Contract	4	0.0%	100.0%

A further observation of the data shown in Table 7 is that the fourteen smallest districts account for only 10% of all calls. Pinellas County is an ensemble of fire districts of very disparate sizes, and having very disparate demands for service.

Figure 2 is another representation of call distribution across the County's fire agencies and districts.

[6] These represent Echo, Delta, Charlie and NA calls into the system.

Figure 2. Emergency Medical Calls by District for FY2010-11



The figure above indicates that some 90% of emergency medical calls in Pinellas occur in 10 of the fire districts while the remaining 10% occur within the remaining districts.

A series of data tables are presented below that are based on calls data retrieved from the Historic CAD. The tables serve to create a data profile on Sunstar and the fire agencies in the County.

Sunstar responds to life-threatening emergency medical calls, as well as non-emergency calls for service such as transferring patients between medical facilities and/or home. Non-emergency constitutes scheduled or unscheduled service calls. For all call types, the contract between the County Authority and Paramedics Plus, the Sunstar contractor, provides response time targets. For the highest priority calls, those that are life-threatening, Sunstar is under a contractual obligation to arrive on 90% of the calls within 10:00 (10 minutes, zero seconds).[7]

Table 8 indicates the distribution of call types that Sunstar responded in according to the Historic CAD data.

[7] Response times defined in terms of a percentile confidence level are noted as fractile response time measures.

Table 8. Call Count to Sunstar from Historic CAD

Sunstar Call Priority	Priority Description	Call Count	%
P1	Emergency	85,078	47.56%
P2	Downgraded Emergency	61,880	34.59%
P3 (booked call)	Non-Emergency Scheduled	1,664	0.93%
P4 (booked call)	Non-Emergency Unscheduled	29,124	16.28%
P5 (booked call)	Out of Town Unscheduled	1,081	0.60%
P7 (booked call)	Out of Town Scheduled	46	0.03%
Total		**178,873**	

Table 9 below indicates Sunstar's response performance according to Historic CAD as downloaded by the consultants.

Table 9. Compliance of Sunstar from Historic CAD Compared to Targets

Sunstar Transports		
Emergency 10:00 @ 90%	Downgraded Emergency 20:00 @ 90%	Inter-facility 60:00 @ 90%
89.84%	95.54%	96.41%

Table 9 indicates that in FY10-11, Sunstar bettered response targets for both downgraded emergency and inter-facility transports. A 0.16%-tile under performance on emergency calls is insignificant and without measurable clinical consequences. (Of special note is that this is the performance of Sunstar without any of the exceptions that are built into its contract, and is extremely high compliance. With the exceptions actually built into its contract, Sunstar would be 3 to 4 % higher in reported performance. This is further expanded in the section titled 'Raw Data Compliance and "Contract Compliance" '.)

Medical first response is a key component of the Pinellas EMS system and fire agencies are to response to emergency calls within 7:30 minutes:second on 90% of calls. For all fire calls and all agencies, the response time in FY10-11 was 7:08 (minutes:seconds) at the 90th percentile. Fire agencies achieved the 7:30 (minute:seconds) target on 91.1% of calls. Table 10 below indicates responses to emergency medical calls for each fire district in the historic CAD.

Table 10. Response Times and Compliance on Fire Emergency Medical Calls from Historic CAD by District and Countywide

District	Medical First Response [1]Target 7:30 @ 90%		
	Count	[min:sec] @ 90%	%-tile @ 7:30
St. Petersburg	27,083	6:46	93.55%
Clearwater	14,482	7:11	89.62%
Largo	12,642	6:04	95.78%
Pinellas Park	8,174	6:33	94.43%
Seminole	6,062	6:40	93.90%
Lealman	4,456	5:42	97.19%
Palm Harbor	4,404	6:36	94.82%
Dunedin	3,794	7:02	91.14%
Tarpon Springs	2,183	7:44	86.90%
South Pasadena	1,495	5:11	96.99%
Safety Harbor	1,432	6:32	93.51%
East Lake	1,278	7:29	88.81%
Gulfport	1,200	7:02	90.00%
St. Pete Beach	1,097	6:23	93.53%
Pinellas Suncoast	977	6:59	92.73%
Oldsmar	919	6:13	94.99%
Treasure Island	712	7:24	88.76%
Madeira Beach	598	6:30	92.98%
Redington Beach	384	6:46	83.59%
Belleair	376	7:11	90.69%
Belleair Bluffs	306	6:04	96.73%
Tierra Verde	168	6:33	98.21%
Fort Desoto Park	68	6:40	63.24%
Oldsmar Contract	4	5:42	100.00%
Pinellas County	**94,294**	**6:43**	**93.18%**

[1]These data reflect raw data compliance rather than contract compliance. For a complete discussion of this distinction, see the section titled 'Raw Data Compliance and "Contract Compliance" '.

Only one district, Tarpon Springs, had a longer response time that the target 7:30 (minutes:seconds) target for 90% of calls. This area is recognized as a hard to serve area because of its location on the extreme northern border of the county. To put the experience in Tarpon Springs into perspective, consider that if Tarpon Springs achieved 90.00%-tile @ 7:30, there would b e 218 calls taking longer than 7:30. As it was with 86.90%-tile @ 7:30, 286 calls took longer than 7:30. The change of 3.10%-tile embraces only 68 calls.

Table 11 below presents response times by district for Fire Emergency Other calls in the historic CAD. For purposes of comparisons to measure changes between models, FITCH applied the same 7:30 response criteria to fire calls as is applied to medical calls.

Table 11. Response Times and Compliance on Fire Emergency Other Calls from Historic CAD by District and Countywide

District	Fire Emergency Other Response Target 7:30 @ 90%		
	Count	min:sec@ 90%	%-tile @ 7:30
St. Petersburg	7,619	6:48	93.62%
Clearwater	3,919	7:05	91.78%
Largo	2,493	6:23	95.35%
Pinellas Park	2,314	6:47	93.82%
Seminole	1,533	7:17	90.80%
Lealman	884	6:38	93.55%
Palm Harbor	1,051	6:50	92.39%
Dunedin	785	7:30	89.55%
Tarpon Springs	663	8:01	86.27%
South Pasadena	229	6:40	94.76%
Safety Harbor	375	7:03	92.27%
East Lake	373	7:47	88.47%
Gulfport	279	6:50	95.34%
St. Pete Beach	405	6:50	93.33%
Pinellas Suncoast	320	7:39	88.44%
Oldsmar	312	6:24	95.51%
Treasure Island	220	7:33	88.64%
Madeira Beach	199	7:05	93.97%
Redington Beach	111	8:29	75.68%
Belleair	110	8:21	83.64%
Belleair Bluffs	88	6:35	96.59%
Tierra Verde	64	6:13	92.19%
Fort Desoto Park	24	8:48	83.33%
Oldsmar Contract	1	4:58	100.00%
Pinellas County	**24,371**	**6:58**	**92.67%**

For fire-related calls several districts experience response times longer than 7:30 (minutes:seconds) at the 90th percentile. To reiterate above, performance related to fire calls is not a contractual item in the contracts between fire agencies and the County regarding medical first response.

Several key metrics are captured in the tables that follow. Dispatch count, vehicle mileage, scheduled work hours and the time to complete a task (a response that may or may not involve a patient

transport) are key variables in a response system. A unit hour equates to one hour that a crew and its apparatus are available to respond or are responding to a call. Unit hours are the basis for much of the costing that will follow in this report. Utilization percentages speak to how busy a particular apparatus and crew are in a given time period – typically measured across a year's time. Below in Table 12 are key statistics in the Pinellas County system, most of which will be part of the further comparison components in this report.

Table 12. Fleet Statistics from Historic CAD

Vehicles	DispatchCount	Mileage[1]	ScheduledUnit Hours	Time-on-Task (Hours)	Utilization
PLUs[2]	0	0	0	0	0.00%
Rescues	73,788	not available	215,430	31,511	14.63%
Engines	91,152	not available	446,760	36,625	8.20%
Trucks	7,437	not available	166,440	9,031	5.43%
Squads	15,353	not available	70,080	4,349	6.21%
Fire Fleet	187,730	not available	898,710	81,516	9.07%
Sunstar Fleet	218,369	not available	296,806	156,981	52.89%
Combined Fleets	406,099	not available	1,199,086	238,497	
Sunstar Transports	**134,790**				

[1]Mileage statistics are not available from historic CAD data.

[2]Peak Load Units are defined, for purposes of this report, as any apparatus not operating on a 24 hour schedule, regardless of apparatus type, and regardless of transport capability; Sunstar units are not reporting under the PLU category.

The statistics by vehicle type indicate how busy a particular type of apparatus is in the system. Rescues and Engines respond to the bulk of the calls in the fire system. The table points out that Sunstar units are about three and one-half times as busy as the busiest units (Rescues) in the fire system. This difference is two-fold, fire systems and medical transport systems have different missions and require different resources and Sunstar works on 12 and 8 hour shifts which allow for higher workloads than 24 hour shifts.

Unit hours measure the number of hours that a staffed vehicle is available for calls. Pinellas County fire agencies schedule units to work 24 hours a day, 7 days a week. In contrast, Sunstar operates its units in accord with call demand. A look at demand by time of day and day of week clearly shows periods of peak demand that matches, for example, rush hour traffic during weekdays. Sunstar continually updates unit schedules and placement to match demand.

Table 13 below indicates the unit hours for each fire district and Sunstar.

Table 13. Unit Hours by District and Sunstar from Historic CAD

District	Unit Hours
St. Petersburg	236,792
Clearwater	140,316
Largo	92,948
Pinellas Park	78,933
Seminole	52,626
Lealman	35,085
Palm Harbor	43,882
Dunedin	35,080
Tarpon Springs	26,307
South Pasadena	17,550
Safety Harbor	17,539
East Lake	26,300
Gulfport	8,767
St. Pete Beach	26,311
Pinellas Suncoast	17,533
Oldsmar	17,524
Treasure Island	8,769
Madeira Beach	8,774
Belleair Bluffs	8,770
Total Fire Fleet	**899,806**
Sunstar (scheduled)	296,806
Sunstar (actual)	9,341
Total Sunstar Operation	**306,147**
Total System Unit Hours	**1,205,953**

The unit hours planned in the system along with the vehicle apparatus assigned to each district are the basis for the Historic Simulation process that follows. The Historic data from the CAD presented earlier is compared with the Historic Simulation data. The Optima Predict™ software was tuned until Historic Simulation sufficiently reflected Historic CAD.

RAW DATA COMPLIANCE AND "CONTRACT COMPLIANCE"

Differences between raw data calculations for extractions of response times from Historic CAD and the operational models and "contract compliance" are expected due to the complexities of "contract compliance" monitoring and reporting that the County does through its performance contracts with fire and ambulance agencies. No attempt was made to embed the "contract compliance" logic into the extraction of data from the Historic CAD or into the simulations of the proposals. None of the minor differences *FITCH* noted between historic CAD data and simulation data were statistically significant or material in nature. That said, an overview of contract compliance monitoring is provided in the following paragraphs.

The following are the policies affecting "contract compliance" monitoring:

Contract:

> **Response time to not less than ninety percent (90%) of all EMS Incidents which are (1) prioritized as an Emergency Response; (2) are within the Contractor's EMS District; and (3) for which Contractor's Unit is determined, in accordance with Section 409, to be the First Due Unit, shall be within seven (7) minutes and thirty (30) seconds or less.**

As compared to raw data – downgraded responses are excluded; responses by units outside of their district are excluded; responses by outside units coming into a district are excluded. The basic premise is to encourage strong and well-functioning "automatic aid" system in a multi-agency environment. The contract doesn't penalize agencies for responding to help their neighbor or for small agencies to miss a call if they are on a call outside of their district.

Resolution:

> **ALS First Responders shall arrive at the scene within 7 minutes and 30 seconds at least 90% of the time calculated for each district on an annual basis. This standard shall be determined on a district-wide basis if the district is served by one provider, or across all the response zones of that provider if the district is served by multiple providers. Those calls where a response is initially dispatched as an emergency call, but is subsequently downgraded to non-emergency shall not be included in the calculation of response times.**

This measure is calculated annually. It is set to ensure a small number of calls in small agencies, especially single station departments, would not cause them to be "out of compliance."

Ambulance

> **Countywide Response Time to Emergency Requests and Downgraded Emergency Requests combined shall be ten (10) minutes and zero (0) seconds or less, for Emergency Requests, and twenty (20) minutes and zero (0) seconds or less, for Downgraded Emergency Requests, ninety (90.00%) percent of the time or greater, except as otherwise provided herein.**
>
> **Exclusions: Non-Transports except those described in Section (e) and Dedicated Standbys. ii. Responses which occur during periods of Uncontrollable Circumstances; provided that Contractor shall make efforts to mitigate the situation and document said conditions and mitigation efforts, the time period affected, and the affected Responses and shall apply for this exception as provided for in this subsection. Should Contractor experience an Uncontrollable Circumstance, Contractor shall, as a condition precedent to the right to claim an Uncontrollable Circumstance, notify the Executive Director in accordance with Section 418. iii. Responses, other than that of the first arriving Ambulance, where more than one Ambulance responds to a single incident involving multiple Patients. Such Responses shall not include simultaneously occurring but separate medical incidents at the same location. iv. Normal, non-Disaster related out-of-County mutual aid.**

As compared to raw data the most important aspect is that Emergency (10:00) and Downgraded Emergencies (20:00) are COMBINED and reported as ONE Emergency Response Time Standard. Further, there are exclusions as listed above. The largest category is "cancelled calls." Ambulance Response time is only calculated on Transports, not Responses. There are a small number of exclusions for "Uncontrollable Circumstance" – i.e., bridge up, train at crossing, etc. There are no "weather" exclusions unless a disaster is declared. The second, or additional, "Ambulances to Multiple Patient Incidents" are excluded, as are a small number of out-of-county mutual aid calls.

HISTORIC SIMULATION (HIS-1)

Historic call information for Pinellas County was obtained as separate files from the fire agencies' CAD and from the Sunstar CAD. These two call information files were merged, based on the Fire Incident Number. In most cases, both organizations respond to an incident. Both CADs assign a call-received timestamps to the incident. Historically, a call did not enter both CADs at the same time. The Optima Predict™ software can accept only a single call-received timestamp. The determination was made to use the timestamp in the fire agencies' CAD as the primary timestamp in the simulations. Total response times for fire units is the interval from the call-received timestamp to first arrival.

Assigning a total response time to Sunstar units is more complicated.[8] For the same fire incident, the call-received timestamp in the Sunstar CAD was usually close to the location-coded timestamp in the Fire Departments' CAD. For purposes of these simulations, total response times for Sunstar units is the interval from the location-coded timestamp to first Sunstar arrival. This protocol may be the source of slight differences between historic and simulated Sunstar response times.

The priority assigned to a call in Optima Predict™ is a combination of fire and Sunstar priorities. For example, a historic call with priority 'F1-S2' is a call recorded by fire CAD with priority 'F1 - Medical' and recorded in Sunstar CAD with priority 'P2 - Downgraded Emergency'.

Attachment A presents an inventory of apparatus for simulation HIS-1 present in each district, and distinguishes between advanced life support and basic life support equipment. It indicates the inventory of apparatus in each station house.
A summary, as vetted by the Fire Chiefs on or before 17 June 2013, of the apparatus included in the HIS-1 simulation of the historic CAD is presented in Table 14.

Table 14. Summary of Apparatus in Simulation HIS-1

Apparatus Type	Totals
Rescues	25
Rescue PLUs	0
Engines ALS	46
Engines BLS	5
Trucks ALS	8
Trucks BLS	11
Squads ALS	4
Squads BLS	4
Total Units	**103**

[8] The total Sunstar time excludes County dispatch time.

Once the Optima software was tuned sufficiently with input from various stakeholders, the Historic Simulation was run and provided data close to Historic CAD. Table 15 below indicates the fire performance on emergency medical calls by district in this simulation of Historic CAD.

Table 15. Response Times and Compliance for Fire Emergency Medical Calls for HIS-1 by District and Countywide

District	Medical First Response Target 7:30 @ 90%		
	Count	min:sec @ 90%	%-tile @ 7:30
St. Petersburg	27,083	6:59	93.42%
Clearwater	14,482	7:23	90.81%
Largo	12,642	6:46	94.75%
Pinellas Park	8,174	7:04	92.72%
Seminole	6,062	7:17	91.42%
Lealman	4,456	6:43	94.73%
Palm Harbor	4,404	7:16	91.58%
Dunedin	3,794	7:44	88.06%
Tarpon Springs	2,183	8:35	82.00%
South Pasadena	1,495	6:27	96.19%
Safety Harbor	1,432	8:13	82.26%
East Lake	1,278	8:09	83.18%
Gulfport	1,200	7:21	91.08%
St. Pete Beach	1,097	6:57	92.89%
Pinellas Suncoast	977	7:22	90.38%
Oldsmar	919	7:13	92.06%
Treasure Island	712	8:04	85.25%
Madeira Beach	598	7:58	86.79%
Redington Beach	384	9:01	71.88%
Belleair	376	7:50	87.23%
Belleair Bluffs	306	6:41	96.08%
Tierra Verde	168	6:43	94.64%
Fort Desoto Park	68	14:27	44.12%
Oldsmar Contract	4	6:43	100.00%
Pinellas County	**94,294**	**7:12**	**91.92%**

The comparison of Table 15 above with performance data from the Historic CAD shows minor differences that can be tolerated in the simulation process. Table 16 below indicates Historic Simulation of fire agency responses to fire and other calls by district.

Table 16. Response Times and Compliance on Fire Emergency Other Calls for HIS-1 by District and Countywide

District	Fire Emergency Other Response Target 7:30 @ 90%		
	Count	min:sec@ 90%	%-tile @ 7:30
St. Petersburg	7,619	6:37	94.59%
Clearwater	3,919	6:43	95.00%
Largo	2,493	6:25	96.31%
Pinellas Park	2,314	6:47	94.17%
Seminole	1,533	7:06	92.17%
Lealman	884	6:20	96.38%
Palm Harbor	1,051	6:49	94.10%
Dunedin	785	7:11	91.46%
Tarpon Springs	663	7:38	88.99%
South Pasadena	229	5:56	97.38%
Safety Harbor	375	7:46	85.60%
East Lake	373	8:01	83.91%
Gulfport	279	7:16	91.04%
St. Pete Beach	405	6:41	94.32%
Pinellas Suncoast	320	7:37	88.75%
Oldsmar	312	6:59	92.95%
Treasure Island	220	8:10	85.45%
Madeira Beach	199	6:59	93.47%
Redington Beach	111	9:01	71.17%
Belleair	110	9:18	65.45%
Belleair Bluffs	88	6:28	97.73%
Tierra Verde	64	7:10	92.19%
Fort Desoto Park	24	14:49	37.50%
Oldsmar Contract	1	5:30	100.00%
Pinellas County	**24,371**	**6:52**	**93.63%**

Again, comparison of Historic CAD performance data for fire responses with that of Historic Simulation data indicate that the software is tuned adequately.

Table 17 and Table 18 on Fleet Statistics and Sunstar Performance further indicate that the differences in the Historic CAD and Historic Simulation are tolerable.

Table 17. Fleet Statistics for Simulation HIS-1

Vehicles	DispatchCount	Mileage	ScheduledUnit Hours	Time-on-Task (Hours)	Utilization
PLUs	0	0	0	0	0.00%
Rescues	73,788	191,329	215,430	31,241	14.46%
Engines	91,152	267,780	446,760	38,989	8.70%
Trucks	7,437	51,507	166,440	6,529	3.91%
Squads	15,353	25,828	70,080	3,099	4.42%
Fire Fleet	187,730	536,444	898,710	79,858	8.89%
Sunstar Fleet	218,369	2,431,272	296,806	168,194	56.67%
Combined Fleets	406,099	2,967,716	1,199,086	248,052	
Sunstar Transports	**134,790**				

In order to ease comparisons, fleet statistics from the historic CAD are repeated below.

Table 18. Fleet Statistics from Historic CAD

Vehicles	DispatchCount	Mileage[1]	ScheduledUnit Hours	Time-on-Task (Hours)	Utilization
PLUs[2]	0	0	0	0	0.00%
Rescues	73,788	not available	215,430	31,511	14.63%
Engines	91,152	not available	446,760	36,625	8.20%
Trucks	7,437	not available	166,440	9,031	5.43%
Squads	15,353	not available	70,080	4,349	6.21%
Fire Fleet	187,730	not available	898,710	81,516	9.07%
Sunstar Fleet	218,369	not available	296,806	156,981	52.89%
Combined Fleets	406,099	not available	1,199,086	238,497	
Sunstar Transports	**134,790**				

[1]Mileage statistics are not available from historic CAD data.
[2]Peak Load Units are defined, for purposes of this report, as any apparatus not operating on a 24 hour schedule, regardless of apparatus type, and regardless of transport capability; Sunstar units are not reporting under the PLU category.

Table 19. Sunstar Performance in Simulation HIS-1 Compared to Targets and to Historic CAD

Simulation	Transports		
	Emergency10:00 @ 90%	Downgraded Emergency 20:00 @ 90%	Inter-facility60:00 @ 90%
Historic CAD	89.84%	95.54%	96.41%
HIS-1	88.25%	89.14%	94.06%

The correspondence between Sunstar's performance in the Historic CAD and the Historic Simulation data indicate that the software is tuned adequately for the purposes of these simulations. These simulations focus on medical first response and fire suppression response rather than Sunstar's response.

Table 20 provides an output comparison of Historic Simulation (HIS-1) to Historic CAD data.

Table 20. Comparison of Response Times for Fire Emergency Medical Calls between HIS-1 and Historic CAD by District and Countywide

District	Count	Fire Emergency Medical	
		Historic CAD	HIS-1
		[min:sec] @ 90%	[min:sec] @ 90%
St. Petersburg	27,083	6:46	6:59
Clearwater	14,482	7:11	7:23
Largo	12,642	6:04	6:46
Pinellas Park	8,174	6:33	7:04
Seminole	6,062	6:40	7:17
Lealman	4,456	5:42	6:43
Palm Harbor	4,404	6:36	7:16
Dunedin	3,794	7:02	7:44
Tarpon Springs	2,183	7:44	8:35
South Pasadena	1,495	5:11	6:27
Safety Harbor	1,432	6:32	8:13
East Lake	1,278	7:29	8:09
Gulfport	1,200	7:02	7:21
St. Pete Beach	1,097	6:23	6:57
Pinellas Suncoast	977	6:59	7:22
Oldsmar	919	6:13	7:13
Treasure Island	712	7:24	8:04
Madeira Beach	598	6:30	7:58
Redington Beach	384	6:46	9:01
Belleair	376	7:11	7:50
Belleair Bluffs	306	6:04	6:41
Tierra Verde	168	6:33	6:43
Fort Desoto Park	68	6:40	14:27
Oldsmar Contract	4	5:42	6:43
Pinellas County	**94,294**	**6:43**	**7:12**

Table 20, above compares response times for Fire Emergency Medical, MFR, calls by district between the Historic CAD and the Optima tuned Historic Simulation, HIS-1. The fidelity of the simulation is very good in all of the large districts. The fidelity of the simulation is also very good for eleven of the fourteen smallest districts. Response times in St. Pete Beach, Redington Beach, and Fort Desoto Park are unaccountably long. These districts represent a small call count and have a negligible effect on countywide statistics.

Table 21, below, shows a comparison of response times for Fire Emergency Other calls by district between the Historic CAD and the Optima tuned Historic Simulation, HIS-1. The fidelity of the simulation is very good in all of the large districts. The fidelity of the simulation is also very good for ten of the fourteen smallest districts. In this comparison, response times in Treasure Island, Redington Beach, Belleair, and Fort Desoto Park are long. Again, these districts represent a small call count and have a negligible effect on countywide statistics. As stated in other sections of the report, the most important fact is that simulations are compared to historic simulation and the changes in performance are compared with the built in bias so that the changes will be true irrespective of the difference in the starting point.

Table 21. Comparison of Response Times for Fire Emergency Other Calls between Historic CAD and HIS-1 by District and Countywide

District	Count	Fire Emergency Other	
		Historic CAD	HIS-1
		min:sec @90%	min:sec @90%
St. Petersburg	7,619	6:48	6:37
Clearwater	3,919	7:05	6:43
Largo	2,493	6:23	6:25
Pinellas Park	2,314	6:47	6:47
Seminole	1,533	7:17	7:06
Lealman	884	6:38	6:20
Palm Harbor	1,051	6:50	6:49
Dunedin	785	7:30	7:11
Tarpon Springs	663	8:01	7:38
South Pasadena	229	6:40	5:56
Safety Harbor	375	7:03	7:46
East Lake	373	7:47	8:01
Gulfport	279	6:50	7:16
St. Pete Beach	405	6:50	6:41
Pinellas Suncoast	320	7:39	7:37
Oldsmar	312	6:24	6:59
Treasure Island	220	7:33	8:10
Madeira Beach	199	7:05	6:59
Redington Beach	111	8:29	9:01
Belleair	110	8:21	9:18
Belleair Bluffs	88	6:35	6:28
Tierra Verde	64	6:13	7:10
Fort Desoto Park	24	8:48	14:49
Oldsmar Contract	1	4:58	5:30
Pinellas County	**24,371**	**6:58**	**6:52**

Table 22. Comparison of Countywide Response Time Compliance between Historic CAD and HIS-1

Call Type	Call Count	Simulation	
		Historic CAD	HIS-1
		%-tile @ 7:30	%-tile @ 7:30
Fire Emergency Medical	94,294	93.18%	91.92%
Fire Emergency Other	24,371	92.67%	93.63%

SIMULATION OF IPS PROPOSAL (IPS-1)

The distinguishing points of the Integrated Performance Solutions Proposal are to remove all 25 Rescue apparatus from the system, and then to upgrade 13 of the 19 non-Rescue capable apparatus (e.g. Engines and Companies) in the system to a Rescue capability.

Which 13 apparatus to upgrade was determined by applying the following common sense rules:

- Upgrade apparatus in the regions that lost Rescue apparatus.
- Upgrade at least six apparatus in the St. Petersburg district
- If there is no non-Rescue capable apparatus available in a district that lost its Rescue apparatus, then upgrade an apparatus in a station closest to this district.

Optima Predict™ Post Plan Builder uses optimizing algorithms to test various multiple combinations of the 13 apparatus upgraded to rescue-capability. Each upgraded apparatus remained at its original station. These apparatus and stations are presented in Table 23, below.

Table 23 below indicates changes in unit status from BLS staffed and equipped to ALS or paramedic staffed and equipped.

Table 23. Apparatus Upgraded from BLS to ALS

Station Name	Vehicle Code	Vehicle Type
St. Petersburg Station 1	T1	Truck
St. Petersburg Station 4	E1	Engine
St. Petersburg Station 5	E5	Engine
St. Petersburg Station 8	E8	Engine
St. Petersburg Station 9	E9	Engine
St. Petersburg Station 9	T9	Truck
St. Petersburg Station 10	E10	Engine
South Pasadena Station 20	T20	Truck
St. Pete Beach Station 23	T23	Truck
Largo Station 41	S41	Squad
Clearwater Station 45	T45	Truck
Clearwater Station 48	T48	Truck
Dunedin Station 60	T60	Truck

Optima Predict™ Post Plan Builder was further employed to explore the effect of moving these upgraded apparatus to other stations, but always within their original districts.

No improvement in response time compliance could be achieved by making these moves. Upgraded apparatus remained at their original stations in the simulations of IPS-1.

Table 24, below, presents the changes in inventory of apparatus for each district.

Table 24. Changes in Apparatus Capability by District for Simulation IPS-1

District	Rescues Removed	Rescue Capability Added
St. Petersburg	10	7
Clearwater	5	2
Largo	3	1
Pinellas Park	3	
Seminole		
Lealman	1	
Palm Harbor		
Dunedin		1
Tarpon Springs	1	
South Pasadena		1
Safety Harbor		
East Lake	1	
Gulfport		
St. Pete Beach	1	1
Pinellas Suncoast		
Oldsmar		
Treasure Island		
Madeira Beach		
Redington Beach		
Belleair		
Belleair Bluffs		
Tierra Verde		
Fort Desoto Park		
Oldsmar Contract		

A summary of apparatus for IPS-1 is provided below in Table 25 and a consolidated and detailed apparatus inventory by district is provided in Attachment B.

Table 25. Summary Apparatus for IPS-1 Simulation

Apparatus Type	Totals
Rescues	0
Rescue PLUs	0
Engines ALS	51
Engines BLS	0
Trucks ALS	15
Trucks BLS	4
Squads ALS	6
Squads BLS	2
Total Units	**78**

The countywide changes in compliance on Fire Emergency Medical and Fire Emergency Other calls in simulations HIS-1 and IPS-1 are presented in Table 26 below.

Table 26, below, presents a comparison of response times for Fire Emergency Medical calls by district between simulation IPS-1 and simulation HIS-1.

Table 26. Comparison of Response Times between HIS-1 and IPS-1 for Fire Emergency Medical Calls by District and Countywide

District	Count	Fire Emergency Medical	
		HIS-1	IPS-1
		[min:sec] @ 90%	[min:sec] @ 90%
St. Petersburg	27,083	6:59	7:17
Clearwater	14,482	7:23	7:35
Largo	12,642	6:46	6:59
Pinellas Park	8,174	7:04	7:23
Seminole	6,062	7:17	7:22
Lealman	4,456	6:43	7:01
Palm Harbor	4,404	7:16	7:22
Dunedin	3,794	7:44	7:24
Tarpon Springs	2,183	8:35	8:25
South Pasadena	1,495	6:27	6:19
Safety Harbor	1,432	8:13	8:09
East Lake	1,278	8:09	8:06
Gulfport	1,200	7:21	7:32
St. Pete Beach	1,097	6:57	7:04
Pinellas Suncoast	977	7:22	7:26
Oldsmar	919	7:13	8:02
Treasure Island	712	8:04	7:56

District	Count	Fire Emergency Medical	
		HIS-1	IPS-1
		[min:sec] @ 90%	[min:sec] @ 90%
Madeira Beach	598	7:58	7:26
Redington Beach	384	9:01	8:37
Belleair	376	7:50	8:31
Belleair Bluffs	306	6:41	6:44
Tierra Verde	168	6:43	6:35
Fort Desoto Park	68	14:27	12:51
Oldsmar Contract	4	6:43	5:06
Pinellas County	**94,294**	**7:12**	**7:24**

The response times in simulation IPS-1 are as good as, or even better than, the performance seen in the simulation HIS-1 on Fire Emergency Medical calls, except in Belleair and Treasure Island. There are a number of districts in which IPS-1 does not meet the 7:30 target response time, but neither does the simulation of HIS-1. In other words, although IPS-1 has deficiencies, they are no more serious than the deficiencies that already exist in simulation HIS-1.

Table 27, below, presents a comparison of response times for Fire Emergency Other calls by district between simulation IPS-1 and simulation HIS-1.

Table 27. Comparison of Response Times between HIS-1 and IPS-1 for Fire Emergency Other Calls by District and Countywide

District	Count	Fire Emergency Other	
		HIS-1	IPS-1
		[min:sec] @ 90%	[min:sec] @ 90%
St. Petersburg	7,619	6:37	7:02
Clearwater	3,919	6:43	7:02
Largo	2,493	6:25	6:37
Pinellas Park	2,314	6:47	7:02
Seminole	1,533	7:06	7:13
Lealman	884	6:20	6:38
Palm Harbor	1,051	6:49	6:47
Dunedin	785	7:11	7:19
Tarpon Springs	663	7:38	7:52
South Pasadena	229	5:56	6:24
Safety Harbor	375	7:46	7:55
East Lake	373	8:01	7:52
Gulfport	279	7:16	7:17
St. Pete Beach	405	6:41	7:06

District	Count	Fire Emergency Other	
		HIS-1	IPS-1
		[min:sec] @ 90%	[min:sec] @ 90%
Pinellas Suncoast	320	7:37	7:28
Oldsmar	312	6:59	7:35
Treasure Island	220	8:10	7:55
Madeira Beach	199	6:59	7:14
Redington Beach	111	9:01	9:05
Belleair	110	9:18	9:20
Belleair Bluffs	88	6:28	7:14
Tierra Verde	64	7:10	6:48
Fort Desoto Park	24	14:49	13:48
Oldsmar Contract	1	5:30	4:31
Pinellas County	**24,371**	**6:52**	**7:07**

Considering response times for Fire Emergency Other calls in the ten largest districts (90% of all calls), IPS-1 does better than the 7:30 minutes:seconds target, except in Tarpon Springs. However, the Historic Simulation, HIS-1, also shows a response time exceeding 7:30 minutes:seconds in Tarpon Springs. Considering response times for fire emergency other calls in the fourteen smallest districts (10% of all calls) IPS-1 does as well as HIS-1. Some of these districts have a slightly faster time than the response times in HIS-1; some of these districts are slightly slower than the response times in HIS-1.

Table 28. Changes in Countywide Response Time Compliance between IPS-1 and HIS-1

Call Type	Call Count	Simulation		
		HIS-1	IPS-1	Change
		%-tile @ 7:30	%-tile @ 7:30	%-tile @ 7:30
Fire Emergency Medical	94,294	91.92%	90.75%	**-1.17%**
Fire Emergency Other	24,371	93.63%	92.37%	**-1.26%**

A 1.17% decrease in compliance for Fire Emergency Medical and a 1.26% decrease for Fire Emergency Other is seen between simulations HIS-1 and IPS-1. The size of these changes is well above the statistical noise inherent in the simulation process and are considered numerically valid. On the other hand, the consequences of these changes on clinical outcomes or fire suppression outcomes in the real world are insignificant. *FITCH* is of the opinion that simulation IPS-1 complies with the County performance targets.

Fleet statistics for simulation IPS-1 are presented in Table 29, below.

Table 29. Fleet Statistics for Simulation IPS-1

Vehicles	DispatchCount	Mileage	Scheduled Unit Hours	Time-on-Task (Hours)	Utilization
PLUs	0	0	0	0	0.00%
Rescues	0	0	0	0	0.00%
Engines	143,944	439,336	446,760	60,450	13.53%
Trucks	33,017	103,578	166,440	14,556	8.75%
Squads	10,786	37,642	70,080	4,775	6.81%
Fire Fleet	187,747	580,556	683,280	79,781	11.71%
Sunstar Fleet	218,369	2,437,293	296,806	168,577	56.80%
Combined Fleets	406,099	3,017,849	980,086	248,358	
Sunstar Transports	**134,790**				

To make comparisons easier, fleet statistics for simulation HIS-1 are presented in Table 30, which is repeated from a previous section.

Table 30. Fleet Statistics for Simulation HIS-1

Vehicles	DispatchCount	Mileage	Scheduled Unit Hours	Time-on-Task (Hours)	Utilization
PLUs	0	0	0	0	0.00%
Rescues	73,788	191,329	215,430	31,241	14.46%
Engines	91,152	267,780	446,760	38,989	8.70%
Trucks	7,437	51,507	166,440	6,529	3.91%
Squads	15,353	25,828	70,080	3,099	4.42%
Fire Fleet	187,730	536,444	902,280	79,858	8.85%
Sunstar Fleet	218,369	2,431,272	296,806	168,194	56.67%
Combined Fleets	406,099	2,967,716	1,199,086	248,052	
Sunstar Transports	**134,790**				

The same dispatch logic applies to both simulation HIS-1 and simulation IPS-1. Significantly, the utilization of the fire fleet increases by 2.82% from 8.86% to 11.68%. Additionally, the mileage of the fire fleet increases by 44,112 miles in IPS-1. This is expected because there are fewer apparatus in the system and the simulation shows that they will drive farther to respond to incidents. The Time-on-Task is essentially identical between IPS-1 and HIS-1.

A major concern in the IPS proposal is that it decommissions the less expensive Rescues and replaces their function with Engines and Trucks that are more expensive to operate and have a significantly higher replacement cost.

A multi-year study by the Tualatin Valley Fire & Rescue in Oregon, reports the costs per mile for three apparatus types: SUVs, Engines, and Trucks. While the Tualatin study does not specifically report costs per mile for Rescues, the costs for Rescues were estimated from the costs of SUV's as follows:

Rescue Purchase = 3 X SUV Purchase = $5.28 / mile
Rescue Operation = 2 X SUV Operations = $1.86 / mile
Rescue Maintenance = 2 X SUV Maintenance = $1.46 / mile

The result of these calculations is the total cost per mile reported in Table 31, below.

Table 31. Cost Per Mile of Rescues, Engines, and Trucks

Vehicle	Cost per Mile			
	Purchase	Operate	Maintain	Total
Rescue	$5.28	$1.86	$1.46	$8.60
Engine	$15.83	$6.53	$5.85	$28.22
Truck	$18.11	$7.83	$7.11	$33.05

Table 32 below estimates the cost of additional mileage that will be experienced in the Pinellas County fire engine and truck fleet under the simulation of the IPS Proposal.

Table 32. Cost of Additional Mileage on Engines and Trucks in Simulation IPS-1

Vehicle	Mileage			Cost per Mile	Cost
	HIS-1	IPS-1	Change		
Rescues	191,329	0	<191,329>	$8.60	-$1,645,429
Engines	267,780	439,336	171,556	$28.22	$4,841,310
Trucks	51,507	103,578	52,071	$33.05	$1,720,946
			IPS -1 Mileage Addn'l Cost		**$4,916,827**

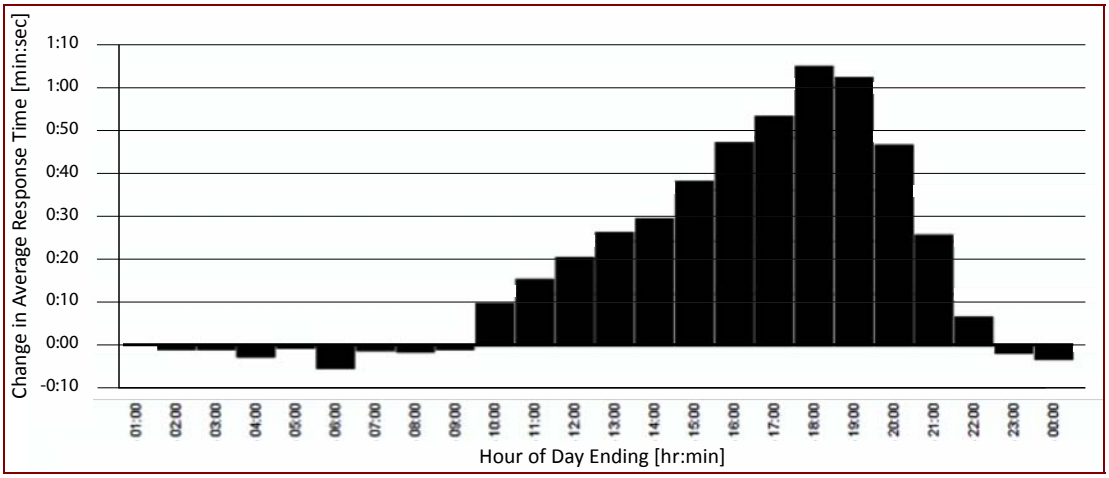
The Simulation IPS shows that the mileage on the heavier and more expensive Engines and Trucks increases substantially. As calculated in Table 32, above, this mileage compared to the Historic Simulation results in additional costs of $4.9 million. IPS decreases personnel costs, but increases the cost of fleet operations. The net result of IPS remains an overall decrease in costs compared to Historic Simulation.

SIMULATIONS OF SANFORD-MILLICAN PROPOSAL

The Sanford-Millican Proposal specifies 16 Peak Load Units, or PLUs, to operate only during times of "high demand." The Proposal presented so specification as to what constituted "high demand" or what time intervals were affected. In order to determine a starting point for when the peak load units would be required, simulations of the Sanford-Millican Proposal were conducted in which no peak load units were included. This will be referred to as Simulation SM0.

Average response times on Echo-Delta calls (life-threatening calls) in SM-0 were compared to those in the Historic Simulation, HIS-1. Changes in this average response time by hour of day are presented in Figure 3, below.

Figure 3. Changes in Average Response Time in SM-0 and HIS-1 by Hour of Day



There is no significant difference in response times between SM-0 and HIS-1 during the interval 22:00 – 09:00 hours. However, the average response time increases in the interval 09:00 – 22:00 hours. Thus, the 16 peak load units specified in the Sanford-Millican Proposal were scheduled for the time interval 09:00 – 21:00 hours.

SIMULATION OF SANFORD-MILLICAN-1 (SM-1)

The Sanford-Millican Proposal removes all 70 Sunstar vehicles from the system. Responsibility for patient transports transfers to the fire agencies. Two current Rescues working on 24-hour schedules are converted into PLUs, working on 12-hour schedules; 14 additional transport capable apparatus are converted into PLUs; six engines are upgraded to rescue capability; and new Rescue vehicles are purchased for the system.

The inventory of apparatus by district for Simulation SM-1 of the initial Sanford-Millican Proposal is detailed in Attachment C. A summary of apparatus for all fire agencies is provided below in Table 33.

Table 33. Summary of Apparatus for SM-1

Apparatus Type	Inventory
Rescues	36
Rescue PLUs	16
Engines ALS	51
Engines BLS	0
Trucks ALS	8
Trucks BLS	11
Squads ALS	5
Squads BLS	3
Total # Units	**130**

The Sanford-Millican Proposal also specifies that the dispatch logic applied to calls ringing into the Pinellas County Communications Center conform to MPDS protocols with the use of ProQA determinants. Table 34, below, describes the medical component of the new dispatch logic. The fire component of dispatch does not change.

Table 34. ProQA Determinants and Dispatch Logic Used in SM-1

ProQA Determinants	Fire Medical Dispatch
Fire CAD calls with ProQA Determinant:	
Echo, Delta, Charlie	Closest Rescue capable vehicle L&S and Rescue or PLU L&S
Bravo ProQA	Closest Rescue capable vehicle L&S If the first is not Rescue or PLU, then closest Rescue or PLU L&S
Alpha or Omega ProQA	Closest Rescue or PLU if ProQA is in Alpha Calls, then Normal speed, otherwise L&S
Fire CAD calls without a ProQA code:	
Fire priority 'F1 - Medical' (marked with ProQA attribute 'NA')	Same as Echo calls
Other Fire priorities with historic response from Sunstar (marked with ProQA attribute 'NA')	Same as Echo calls
Other Fire priorities without historic response from Sunstar:	Same as in historic CAD
Sunstar CAD calls (without Fire response):	Same as in historic CAD
Sunstar P1 calls (marked with ProQA attribute 'NA')	Same as Echo calls
Sunstar only CAD P2 calls	Closest Rescue or PLU Normal speed
Sunstar only CAD booked calls	Closest PLU @ Normal speed, if there is no PLU within response time, then closest Rescue Normal speed

Note: L&S means responding hot with lights and sirens.

For the Historic Simulation, HIS-1, dispatch logic is based on fire and Sunstar call priorities. The new ProQA-based logic requires that different vehicles be sent with different travel priorities, which means that the historic fire or Sunstar performance measures are not applicable to the fire Proposal scenario.

A new ProQA-based determinant was introduced as 'Echo calls'. These are the most important group of medical calls. They consists of all fire calls with the prior ProQA determinant Echo, Charlie or Delta, all calls recorded in Sunstar CAD only with Sunstar priority P1, all calls with Fire priority 'F1 - Medical' with unknown ProQA code and all calls with other Fire Priorities and historic response from Sunstar. Response target compliance for this group is used as the main performance measure throughout the Sanford-Millican Proposal scenarios analysis.

When simulation of the Sanford-Millican Proposal is run (SM-1) the output provides performance data for comparison to Historic Simulation, HIS-1, performance data. The comparison data is provided in Table 35 below.

Table 35. Changes in Compliance by Medical Call Type between HIS-1 and SM-1

Call Type	Call Count	Simulation	
		HIS-1	SM-1
		%-tile @ 7:30	%-tile @ 7:30
Echo, Delta, Charlie, NA	94,364	94.84%	95.74%
Bravo	26,499	94.65%	94.91%
Alpha, Omega	23,624	99.96%	94.16%
Any ProQA	144,487	94.56%	89.28%
Sunstar P1	84,379	95.73%	94.28%
Sunstar P2	61,707	87.51%	78.30%
Sunstar P1 and P2 no ProQA	6,692	37.01%	53.97%

As Table 35 above indicates, this scenario results in a performance increase (better), as measured by the response time compliance for calls requiring a medical response for Echo calls of nearly 1%, and across most districts. A performance decrease in the 'Any ProQA', 'Sunstar P2', and 'Alpha, Omega' is expected as some of the calls with these priorities are now dispatched at normal speeds rather than urgently with lights and sirens. A performance decrease in South Pasadena, St. Pete Beach and Tierra Verde occurs. However, these areas have low call levels and all apart from St. Pete Beach still achieve over 90% compliance.

Table 36, below, shows a comparison of response times by district for Fire Emergency Medical calls in the simulations HIS-1 and SM-1.

Table 36. Comparison of Response Times between HIS-1 and SM-1 by District and Countywide

District	Count	Fire Emergency Medical	
		HIS-1	SM-1
		[min:sec] @ 90%	[min:sec] @ 90%
St. Petersburg	27,083	6:59	6:15
Clearwater	14,482	7:23	6:44
Largo	12,642	6:46	6:15
Pinellas Park	8,174	7:04	6:29
Seminole	6,062	7:17	6:29
Lealman	4,456	6:43	5:58
Palm Harbor	4,404	7:16	6:36
Dunedin	3,794	7:44	6:51
Tarpon Springs	2,183	8:35	7:37
South Pasadena	1,495	6:27	7:07
Safety Harbor	1,432	8:13	6:53
East Lake	1,278	8:09	7:41
Gulfport	1,200	7:21	6:52
St. Pete Beach	1,097	6:57	8:00
Pinellas Suncoast	977	7:22	6:53
Oldsmar	919	7:13	6:49
Treasure Island	712	8:04	7:46
Madeira Beach	598	7:58	7:04
Redington Beach	384	9:01	7:47
Belleair	376	7:50	7:20
Belleair Bluffs	306	6:41	6:08
Tierra Verde	168	6:43	6:40
Fort Desoto Park	68	14:27	12:24
Oldsmar Contract	4	6:43	5:48
Pinellas County	**94,294**	**7:12**	**6:34**

In all districts the response times on Fire Emergency Medical calls simulated in SM-1 are faster than those in HIS-1 except for St. Pete Beach.

Table 37, below shows a comparison of response times by district for Fire Emergency Other calls in the simulations HIS-1 and SM-1.

Table 37. Comparison of Performance between SM-1 and HIS-1 for Fire Emergency Other

District	Count	Fire Emergency Other	
		HIS-1	SM-1
		[min:sec] @ 90%	[min:sec] @ 90%
St. Petersburg	7,619	6:37	6:35
Clearwater	3,919	6:43	6:48
Largo	2,493	6:25	6:24
Pinellas Park	2,314	6:47	6:41
Seminole	1,533	7:06	6:55
Lealman	884	6:20	6:07
Palm Harbor	1,051	6:49	6:40
Dunedin	785	7:11	7:17
Tarpon Springs	663	7:38	7:37
South Pasadena	229	5:56	6:22
Safety Harbor	375	7:46	7:26
East Lake	373	8:01	8:19
Gulfport	279	7:16	6:56
St. Pete Beach	405	6:41	6:31
Pinellas Suncoast	320	7:37	7:05
Oldsmar	312	6:59	7:10
Treasure Island	220	8:10	7:20
Madeira Beach	199	6:59	7:25
Redington Beach	111	9:01	8:52
Belleair	110	9:18	8:59
Belleair Bluffs	88	6:28	6:08
Tierra Verde	64	7:10	5:53
Fort Desoto Park	24	14:49	14:56
Oldsmar Contract	1	5:30	5:29
Pinellas County	**24,371**	**6:52**	**6:36**

In all districts, the response times on Fire Emergency Other calls simulated in SM-1 are faster than those in HIS-1 except for East Lake and Fort Desoto Park.

The countywide changes in compliance on Fire Emergency Medical and Fire Emergency Other calls in simulations HIS-1 and SM-1 are presented in Table 38, below.

Table 38. Changes in Countywide Response Time Compliance between HIS-1 and SM-1

Call Type	Call Count	Simulation		
		HIS-1	SM-1	Change
		%-tile @ 7:30	%-tile @ 7:30	%-tile @ 7:30
Fire Emergency Medical	94,294	91.92%	95.73%	**3.81%**
Fire Emergency Other	24,371	93.63%	93.84%	**0.21%**

A 3.81% increase in compliance for Fire Emergency Medical and a 0.21% increase for Fire Emergency Other is seen between simulations HIS-1 and SM-1. The size of the 3.81% increase is well above the statistical noise inherent in the simulation process and this change is considered numerically valid. The size of the 0.21% increase is comparable to the statistical noise inherent in the simulation process and is not considered numerically valid. The 3.81% increase in compliance corresponds to a 38 second decrease in response time for Fire Emergency Medical calls. In the real world, shaving 38 seconds off of a 7:12 response time has no significant impact on clinical outcomes. *FITCH* is of the opinions that simulation SM-1 complies with the County performance targets, but not does not improve upon these targets to any meaningful degree.

Fleet statistics for simulation SM-1 are presented in Table 39, below.

Table 39. Fleet Statistics for Simulation SM-1

Vehicles	DispatchCount	Mileage	Scheduled Unit Hours	Time-on-Task (Hours)	Utilization
PLUs	41,231	631,567	70,080	44,864	62.18%
Rescues	166,234	1,523,845	311,790	128,832	41.21%
Engines	110,775	308,068	446,760	37,803	8.44%
Trucks	16,613	53,453	166,440	5,958	3.57
Squads	7,150	24,458	70,056	2,501	3.56%
Fire Fleet	342,003	2,541,390	1,065,126	219,958	20.56%
Sunstar Fleet	0	0	0	0	0
Combined Fleets	342,003	2,541,390	1,065,126	219,958	
Rescue Transports	101,972				
PLU Transports	32,818				
Total Transports	**134,790**				

To make comparisons easier, fleet statistics for simulation HIS-1 are presented in Table 40, which is repeated from a previous section.

Table 40. Fleet Statistics for Simulation HIS-1

Vehicles	DispatchCount	Mileage	ScheduledUnit Hours	Time-on-Task (Hours)	Utilization
PLUs	0	0	0	0	0.00%
Rescues	73,788	191,329	215,430	31,241	14.46%
Engines	91,152	267,780	446,760	38,989	8.70%
Trucks	7,437	51,507	166,440	6,529	3.91%
Squads	15,353	25,828	70,080	3,099	4.42%
Fire Fleet	187,730	536,444	902,280	79,858	8.85%
Sunstar Fleet	218,369	2,431,272	296,806	168,194	56.67%
Combined Fleets	406,099	2,967,716	1,199,086	248,052	
Sunstar Transports	**134,790**				

The first point of comparison between SM-1 and HIS-1 has already been made. Both simulations meet targets for response times. Simulation SM-1 results in a reduction of 133.960 scheduled units hours compared to HIS-1 (1,199,086 – 1,065,126 unit hours). Simulation SM-1 also results in a reduction of 426,326 fleet mileage (2,967,716 – 2,541,326 miles). Simulation SM-1 shows a decrease in total distance travelled by 14% compared to Simulation HIS-1. Both of these changes are in positive directions. The main factor contributing to these reductions in scheduled unit hours and fleet mileage is the application of ProQA and MPDS dispatch logic in SM-1.

However, there are aspects of the simulation which are not positive. Engines have a small increase in their total mileage. Rescue vehicles have a 3.5X increase in their total mileage. The most serious negative aspect of Simulation SM-1 is the utilization of Rescues and PLUs. Between HIS-1 and SM-1, the utilization of Rescues increases from 14.46% to 41.21%. In SM-1, the utilization of PLUs is 62.18%. These utilizations are far in excess of the maximum utilization recommended by the Pinellas County Fire Chiefs.

For purposes of this report, vehicle utilization and crew utilization are essentially equivalent. Crew utilization is defined as the number of hours a vehicle and its crew are rolling on task divided by the number of hours in the crew's shift. Crew utilization is a key metric for judging activity in emergency services. High performance, private, and profitable EMS systems exhibit very high crew utilizations. In Sunstar fleet statistics reported for Simulation HIS-1, utilization is 54.80%. Sunstar crews in EMS systems typically work on 8 and 12 hour shifts. In contrast, crews in Pinellas County fire agencies typically work on 24-hour shifts.

Consider a fire department crew working a 24-hour shift on a Rescue in Simulation SM-1. Assume a one hour time-on-task. A 41% utilization means this crew is rolling for 60 minutes, has 86 minutes downtime between calls, and the pace continues for the whole 24 hours. Fatigue sets in and judgment gets clouded. Pinellas County Fire Chiefs along with others, have recommended that crew utilization not exceed 30%.

"Workload On Rescue Units - The Fire EMS Reconfiguration Committee, which included members from management, Labor, and Fire Chiefs Association came to consensus that a thirty percent (30%) workload should be a maximum for 24 hour personnel to avoid potential fatigue related errors or accidents."[9]

A 30% utilization means this crew would be rolling for 60 minutes and then have 140 minutes downtime between calls. The 24-hour shift length for fire crews precludes fire crews from getting to the crew utilization levels seen for crews working 8- and 12-hour shifts. For purposes of illustration, assume a one hour time on task. A 55% crew utilization means there is only 1 hour of down time between calls. An EMS crew on an 8-hour shift can keep up this pace of activity for 8 hours. A fire crew will have difficulty keeping up a pace of one hour rolling and one hour down for the whole 24 hour shift

The 30% utilization is not an arbitrary metric, but is supported by realistic studies. In 2007 the International Association of Fire Chiefs commissioned a study, "The Effects of Sleep Deprivation on Fire Fighters and EMS Responders." This study specifically addressed the notion of 24-hour shifts and shift work in general. Below are key findings of this study that apply to this situation:

- Adequate restorative sleep is needed to perform optimally and to be healthy. An individual's circadian rhythm also affects functional abilities and the quality of sleep obtained. Most adults require six to eight hours of sleep each day, with episodes of sufficient duration to achieve all stages of sleep
- Alertness decreases with sustained wakefulness, so that being awake for 24 hours produces impairment equivalent to a blood alcohol level of 0.10
- Long work hours (shifts lasting more than 10 to 18 hours) have been clearly linked to time dependent errors in tasks requiring vigilance and focused alertness, as evidenced by an increase in motor vehicle crashes, errors among health care providers and work related injuries and accidents
- Chronic sleep loss results in decreased ability to think clearly and handle complex tasks, a depressed mood and feelings of stress and irritability. Those effects are not reliably predicted by how sleepy an individual feels, as chronically sleep deprived people do not perceive their lack of sleep as the problem
- Chronic sleep deprivation and long work hours are linked to a general increase in health complaints, obesity, obstructive sleep apnea, and possibly, a heightened risk for cardiovascular disease. Potential associations also have been made with digestive disorders, increased risk of infections and greater likelihood of malignancies.

[9] Letter dated May 6, 2009, from Frank P. Edmunds, City Manager, City of Seminole, to Robert S. LaSala, Pinellas County Administrator regarding findings of a committee comprised of City Managers, City and Fire District Fire Chiefs, and County Administration, titled "Analysis Of The Hybrid Transport Proposal "

There are two key points to be gained from this study regarding a 24-hour shift:

1. Sleep should occur in patterns that exceed 3 hours and must combine to give 6 to 8 hours, and
2. Consecutive work time should not exceed 10 hours.

The consultant also requested the System Medical Director express an opinion related to shift patterns and utilization rates. The following paragraph outlines those views.

> "It is well recognized that fatigue is a strong contributing factor in medical errors. Recent years have seen significant changes in hospital staffing patterns including most notably the implementation of graduate medical education work hour restrictions. Excellent research over the last several years has shown that increased level of fatigue increases medical errors, adverse events, provider injury, and self-reported unsafe behaviors among EMS providers.[10] While there is not yet sufficient literature to conclusively state the optimal shift length and unit hour utilization level for EMS providers, it stands to reason that the combination of long shift durations and excessively high unit hour utilization would result these same detrimental outcomes. [11]

Concerns about high crew utilization in Sanford-Millican-1 led to development of a second plan that would lower utilization and still achieve performance for the system.

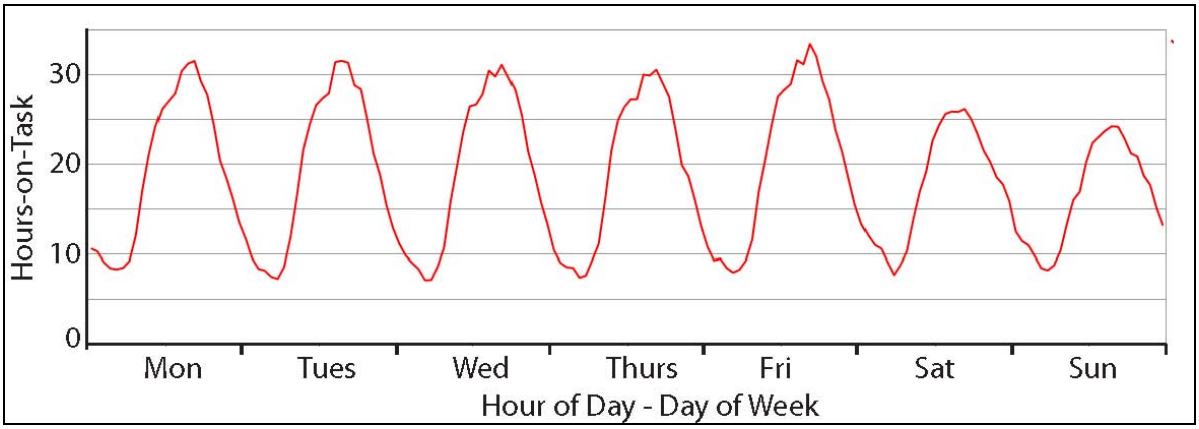
SIMULATION OF SANFORD MILLICAN-2 (SM-2) FIRE TRANSPORT MODEL NORMALIZED

The problem with utilization seen in simulation SM-1 was resolved in simulation SM-2 by adding Rescue units and Peak Load Units to the system. The optimization required to bring the Simulation SM-1 into conformity with a maximum utilization of 30% for Rescues and a maximum utilization of 55% for PLUs was conducted in several stages. First, a test simulation was conducted in which the system was "saturated" with Rescues. This condition was achieved with four Rescues assigned to each of the 64 station for a total of 256 Rescues. This simulation was run to determine how the historic demand for emergency medical services translated to hours of time-on-task, busy hours, by hour of day. These results are presented in Figure 4, below.

[10] Bigham BL, Buick JE, Brooks SC et al. Patient Safety in Emergency Medical Services: A Systematic Review of the Literature. Prehosp Emerg Care, 2012: 16: 20-35

[11] Patterson PD, Weaver MD, Frank RC, et al. Association between poor sleep, fatigue, and safety outcomes in emergency medical services providers. Prehosp Emerg Care. 2012;16:86–97.

Figure 4. Countywide Hours-on-Task By Hour of Day and Day of Week



This utilization curve shows that the maximum of busy unit hours is 33.44 on Friday in the interval 16:00 – 17:00 hours, and the minimum busy unit hours are 7.14 on Wednesday in the interval 04:00 – 06:00 hours. A new inventory of apparatus in the system was constructed. A sufficient number of Rescues was included to cover low demand (through the troughs in Figure 4 at a utilization of less than 30%. A sufficient number of PLUs was then added to cover high demand (over the peaks in the figure) at a utilization of less than 55%. A further constraint was imposed that sufficient resources had to be present in a district such that a call originating in a district would be responded to from within the same district. A last constraint was imposed that PLUs have utilizations greater than 20%.

A configuration of Rescues and Peak Load Units that meet all of the above constraints requires 43 Rescues operating on 24-hour shifts and 48 PLUs operating of 12-hour shifts in the interval 09:00 – 21:00 hours. The number of Rescues, PLUs and their utilizations are presented by district in Table 41.

Table 41. Rescues, PLUs, and Utilizations by District and by Station

Fire District	Station	Rescue Units	Peak Load Units	Rescue Utilization	Peak Load Unit Utilization
Belleair Bluffs	43	1	1	20%	43%
Clearwater	45	2	1	26%	49%
	47	2		23%	
	48	2		28%	
	49	2		25%	
	50		1		36%
	51		1		33%
Dunedin	60	1	3	24%	31%
	62		1		35%
East Lake	56	1		25%	
Gulfport	17	1	1	18%	27%

Fire District	Station	Rescue Units	Peak Load Units	Rescue Utilization	Peak Load Unit Utilization
Largo	38	2		27%	
	39		2		34%
	40		1		33%
	41	2	1	27%	50%
	42	1	1	31%	42%
Lealman	18	2	1	25%	43%
	19		3		36%
Madeira Beach	25	1	1	15%	26%
Oldsmar	54	1		16%	
Palm Harbor	65	2		30%	
	66		1		28%
	67		1		24%
Pinellas Park	16		1		32%
	33	2	1	24%	43%
	34	1	1	23%	34%
	35		2		26%
Pinellas Suncoast	27	1		13%	
Safety Harbor	52		1		31%
	53	1	2	19%	35%
Seminole	29	1	1	26%	33%
	30	1	2	25%	33%
	31		1		23%
	32		1		34%
South Pasadena	20	1	2	27%	26%
St. Petersburg	1	2	2	26%	45%
	3	2		27%	
	4		1		46%
	5		2		45%
	6		1		33%
	7	2		32%	
	8	1	1	22%	37%
	9		1		32%
	10	1		28%	
	11	1	1	23%	35%
	13		1		31%
St. Pete Beach	23	1		20%	
Tarpon Springs	69	1	1	20%	37%
	70		1		20%
Treasure Island	24	1		15%	

The summary inventory of PLUs, Rescues, Engines, Trucks, and Squads by district, as presented in Table 42, below, was used as inputs to the Simulation SM-2. Attachment D provides a consolidated, detailed apparatus inventory by station for SM-2

Table 42. Summary Inventory of Apparatus for SM-2

Apparatus Type	Inventory
Rescues	43
Rescue PLUs	48
Engines ALS	51
Engines BLS	0
Trucks ALS	8
Trucks BLS	11
Squads ALS	5
Squads BLS	3
Total # Units	**169**

Table 43 below indicates response time compliance by call type for SM-2 compared to SM-1.

Table 43. Response Time Compliance by Medical Call Type in Simulation SM-2 Compared to HIS-1

Call Type	Call Count	Simulation	
		HIS-1	SM-2
		%-tile @ 7:30	%-tile @ 7:30
Echo, Delta, Charlie, NA	94,364	94.84%	97.15%
Bravo	26,499	94.65%	96.61%
Alpha, Omega	23,624	93.30%	98.62%
Any ProQA	144,487	94.56%	92.91%
Sunstar P1	84,379	95.73%	96.17%
Sunstar P2	61,707	87.51%	86.11%
Sunstar P1 and P2 no ProQA	6,692	37.01%	71.24%

Simulation SM-2 exceeds its compliance targets on all call types except in the last two categories, “Sunstar P2” and “Sunstar P1 and P2 no ProQA.” The Historic Simulation, HIS-1, also fails to meet its compliance targets in these categories.

The countywide changes in compliance on Fire Emergency Medical and Fire Emergency Other calls in Simulations HIS-1 and SM-2 are presented in Table 44 below.

A comparison of response times by district for Fire Emergency Medical calls in the Simulations HIS-1 and SM-2 is provided in Table 44 below.

Table 44. Comparison of Response Times between HIS-1 and SM-2 For Fire Emergency Medical Calls by District and Countywide

District	Count	Fire Emergency Medical	
		HIS-1	SM-2
		[min:sec] @ 90%	[min:sec] @ 90%
St. Petersburg	27,083	6:59	6:03
Clearwater	14,482	7:23	6:23
Largo	12,642	6:46	5:50
Pinellas Park	8,174	7:04	6:10
Seminole	6,062	7:17	6:09
Lealman	4,456	6:43	5:42
Palm Harbor	4,404	7:16	6:26
Dunedin	3,794	7:44	6:43
Tarpon Springs	2,183	8:35	7:29
South Pasadena	1,495	6:27	6:05
Safety Harbor	1,432	8:13	6:55
East Lake	1,278	8:09	7:16
Gulfport	1,200	7:21	6:22
St. Pete Beach	1,097	6:57	7:20
Pinellas Suncoast	977	7:22	6:29
Oldsmar	919	7:13	6:25
Treasure Island	712	8:04	6:47
Madeira Beach	598	7:58	6:13
Redington Beach	384	9:01	7:22
Belleair	376	7:50	7:08
Belleair Bluffs	306	6:41	5:35
Tierra Verde	168	6:43	6:35
Fort Desoto Park	68	14:27	13:26
Oldsmar Contract	4	6:43	5:28
Pinellas County	**94,294**	**7:12**	**6:16**

In all districts, the response times on Fire Emergency Medical calls in simulation SM-2 are faster than the response times in Simulation HIS-1.

Table 45, below, shows a comparison of response times by district for Fire Emergency Other calls in the Simulations HIS-1 and SM-2.

Table 45. Comparison of Response Times between HIS-1 and SM-2 For Fire Emergency Other by District and Countywide

District	Count	Fire Emergency Other	
		HIS-1	SM-2
		[min:sec] @ 90%	[min:sec] @ 90%
St. Petersburg	7,619	6:37	6:37
Clearwater	3,919	6:43	6:31
Largo	2,493	6:25	6:08
Pinellas Park	2,314	6:47	6:37
Seminole	1,533	7:06	6:46
Lealman	884	6:20	5:59
Palm Harbor	1,051	6:49	6:17
Dunedin	785	7:11	7:00
Tarpon Springs	663	7:38	7:14
South Pasadena	229	5:56	5:28
Safety Harbor	375	7:46	7:27
East Lake	373	8:01	7:56
Gulfport	279	7:16	7:05
St. Pete Beach	405	6:41	6:01
Pinellas Suncoast	320	7:37	6:43
Oldsmar	312	6:59	7:13
Treasure Island	220	8:10	7:45
Madeira Beach	199	6:59	6:41
Redington Beach	111	9:01	8:17
Belleair	110	9:18	8:39
Belleair Bluffs	88	6:28	5:38
Tierra Verde	64	7:10	7:57
Fort Desoto Park	24	14:49	12:52
Oldsmar Contract	1	5:30	4:30
Pinellas County	**24,371**	**6:52**	**6:39**

As with emergency medical calls, in all districts, the response times on Fire Emergency Other calls in Simulation SM-2 are faster than the response times in Simulation HIS-1. The reduced response times in simulation SM-2 for Fire Emergency Medical and Fire Emergency Other calls are a direct consequence of the introduction of additional resources into the model, both Rescues as full time units and Rescues as peak load units.

Table 46. Changes in Countywide Response Time Compliance between HIS-1 and SM-2

Call Type	Call Count	Simulation		
		HIS-1	SM-2	Change
		%-tile @ 7:30	%-tile @ 7:30	%-tile @ 7:30
Fire Emergency Medical	94,294	91.92%	97.13%	**5.21%**
Fire Emergency Other	24,371	93.63%	94.50%	**0.87%**

A 5.21% increase in compliance for Fire Emergency Medical and a 0.87% increase for Fire Emergency Other is seen between simulations HIS-1 and SM-2. The size of these changes is well above the statistical noise inherent in the simulation process and these changes are considered numerically valid. The 5.21%% increase in compliance corresponds to a 56 second decrease in response time for Fire Emergency Medical calls. In the real world, shaving 56 seconds off of a 7:12 response time has no significant impact on clinical outcomes. The 0.87% increase in compliance corresponds to a 13 second decrease in response time for Fire Emergency Other calls. In the real world, shaving 13 second off a 6:52 response time has no significant impact on the outcome of fire suppression. *FITCH* is of the opinions that simulation SM-2 complies with the County performance targets, but not does not improve upon these targets to any meaningful degree.

Fleet statistics for Simulation SM-2 are presented in Table 47, below.

Table 47. Fleet Statistics for Simulation SM-2

Vehicles	DispatchCount	Mileage	Scheduled Unit Hours	Time-on-Task (Hours)	Utilization
PLUs	90,016	850,339	210,240	75,742	36.00%
Rescues	112,622	951,997	376,680	90,302	24.00%
Engines	114,553	297,282	446,760	33,786	7.56%
Trucks	17,632	53,003	166,440	5,125	3.08%
Squads	7,436	23,328	70,080	2,027	2.89%
Fire Fleet	139,621	2,175,949	1,270,200	206,982	16.30%
Sunstar Fleet	0	0	0	0	0.00%
Combined Fleet	139,621	2,175,949	1,270,200	206,982	
Rescue Transports	75631				
PLU Transports	64,159				
Total Transports	**134,790**				

To make comparisons easier, fleet statistics for Simulation SM-1 are presented in Table 48, which is repeated from a previous section.

Table 48. Fleet Statistics for Simulation SM-1

Vehicles	DispatchCount	Mileage	Scheduled Unit Hours	Time-on-Task (Hours)	Utilization
PLUs	41,231	631,567	70,080	44,864	62.18%
Rescues	166,234	1,523,845	311,790	128,832	41.21%
Engines	110,775	308,068	446,760	37,803	8.44%
Trucks	16,613	53,453	166,440	5,958	3.57
Squads	7,150	24,458	70,056	2,501	3.56%
Fire Fleet	342,003	2,541,390	1,065,126	219,958	20.56%
Sunstar Fleet	0	0	0	0	0
Combined Fleets	342,003	2,541,390	1,065,126	219,958	
Rescue Transports	101,972				
PLU Transports	32,818				
Total Transports	**134,790**				

Fleet mileage in SM-2 is 365,441 miles less than fleet mileage in SM-1. Scheduled unit hours in SM-2 are 207,686 hours greater than in SM-1. Utilization of PLUs and Rescues in SM-1 is 62.18% & 41.21% respectively, and significantly exceeds the fire department recommendation of 30%. Utilization of PLUs and Rescues in SM-2 has been brought into conformity with fire department recommendations.

PINELLAS HYBRID ANALYSIS

In the current Pinellas County EMS system**,** all Fire agencies provide ALS medical first response to medical emergencies. There were two primary Hybrid approaches described by stakeholders. These Hybrid models would involve Fire agencies that self-elect to either participate in the transport of emergency patients and/or the transport of patients in non-emergency situations.

FITCH considered multiple options and iterations of a Pinellas Hybrid approach. The consultants explored the definition of such models, evaluated implementation steps, and conducted cost comparisons. The analysis pointed to key areas of deficiency that make it impractical to move the models forward to formal simulation using the Optima software. Those key results are summarized below.

SERVICE CATEGORIES

Under Pinellas Hybrid models, each of the 18 fire agencies, would self-select one of four service categories as follows:

1. Medical first response only (no patient transport)
2. Medical first response and transport of only emergency patients
3. Medical first response and transport of only inter-facility (non-emergency) patients
4. Medical first response and transport of emergency patients and inter-facility (non-emergency) patients

In addition to the four formal service categories above, there is a scenario in which fire departments transport ad hoc until their capacity is exceeded. This approach is described separately below in a sub-section titled "Fragmented Systems."

The possible combinations across all 18 Fire agencies and the four service categories result in an astronomical number of possibilities that preclude formal simulations.[12] There are, however, certain steps and decisions points that can be discussed regarding implementation of a Pinellas Hybrid model.

DETERMINE AN OPERATIONAL SERVICE PERIOD

As a first step, the County and Fire agencies would need to commit to a minimum time frame for which services are to be provided. This means that once an agency has declared *what* services it will provide, that agency would enter into an agreement to provide the services to a set period of time and would need to face significant penalties for opting out of the service.

The current Sunstar contract with a private ambulance provider is for the term of five years. This time period is long enough for the operations to be initiated and stabilized, for performance to be measured

[12] $N=72! \approx 6{,}123 \times 10^{100}$

in a meaningful manner and importantly, for financial investments to experience a return (i.e., collection of transport revenues beyond the initial transition revenue lag, etc.)

Premature or unanticipated movement in and out of service categories will de-stabilize the system. Therefore, once services are declared, there can be no change for the entire five-year hybrid contract period.

AGENCY SERVICE CATEGORY DECLARATION

As noted above, Fire agencies would need to declare exactly what services they will provide during the five-year hybrid contact period. Again, the service categories are:

1. Medical first response only (no patient transport)
2. Medical first response and transport of only emergency patients
3. Medical first response and transport of only inter-facility (non-emergency) patients
4. Medical first response and transport of emergency patients and inter-facility (non-emergency) patients

Sufficient time (a minimum of one year) for transition and the logistics of implementation is required.

IMPLEMENTATION

Several implementation situations unique to a Pinellas Hybrid model are likely to occur depending on which Fire agencies select which of the above service categories, their geographic boundaries and the resultant number of calls and transports.

- Service boundaries may not be contiguous which would result in fragmented or patchwork geographic service areas and cumbersome and inefficient delivery of services.
- Funding a Pinellas Hybrid model is complex and economies of scale are diminished for those providing transport.
- Contracting with health care facilities for non-emergency transports must be handled by each Fire agency, as there is no longer a unified non-emergency system with one lead agency or provider in place, encouraging independent contractors to enter the service area and siphon off business.
- The consequence of and solution for operational non-performance (not meeting response times) or financial failure (not producing transport revenues to match the prior unified system) must be pre-determined and be enforceable.
- A contract must be put in place to serve those areas where Fire agencies have decided not to provide emergency patient transport services. The potential for a patchwork geographic territory is high and would result in higher costs (higher transport fees or a subsidy) or by offset by longer response times to patients.
- A contract must be put in place to serve those areas where Fire agencies have decided not to provide non-emergency patient transport services. The critical mass of non-emergency transports could be reduced to a point of inefficiency with an unknown outcome.

MEDICARE AND MEDICAID

A Pinellas Hybrid model is, in essence, a fragmented collection of agencies within the County providing varying services (some not transporting, some transporting only emergency patients, some transporting only non-emergency patients and others transporting both emergency and non-emergency patients). *FITCH* feels that this level of service differentiation will cause that Medicare and Medicaid to view each agency as being independent and would require individual Medicare and Medicaid provider numbers. With this in mind, the complex issues of billing and collection along with increased operational, clinical and financial liability must be borne by each agency and not by the County or a single contracted private provider.

REVENUES

Assuming there is some level of sharing of transport revenues, the failure of any one agency to master billing and collection functions will negatively impact all other transporting Fire agencies.

GOVERNANCE

Governance issues for a Pinellas Hybrid are much more complex than in an "all in" or "all out" model such as the current system, the IPS model or Sanford-Millican models. Logistics, dispatch, operational, clinical and financial performance are more difficult to manage. Economies of scale will be lost. The County and the community-at-large would be subject to radical changes in service delivery models due to the option for Fire agencies to opt in or out of transport service with every operational service period.

Evaluating Pinellas Hybrid Model Efficiency

Based on the Sanford-Millican model certain conclusions can be drawn upon to aid in evaluating a Pinellas Hybrid model. The Pinellas Hybrid model is based on the principle of subdividing the calls to multiple transport providers either based on geography (one city transports while another provider does the rest of the calls) or on call type (emergency versus inter-facility) or a combination of both. One has to determine the cost per call by each of the providers in order to understand if it is fiscally responsible to substitute one provider with another.

The cost of a call has embedded in it several components: vehicle operational expenses, medical supplies expenses, administrative expenses, governance expenses, and personnel expenses. Sunstar operates consolidated administrative, governance, procurement, and billing systems. All possible hybrid models are inherently fragmented. Nonetheless, *FITCH* chose to give the fire departments the benefit of the doubt and assumed that all of these expense items in the fragmented models, except personnel, would be no more costly than in the consolidated Sunstar system. Furthermore, *FITCH* gave the fire departments the benefit-of-the doubt and assumed that transport revenues would be collected as efficiently by the fire agencies as in the current system. Thus revenues are the same in all possible models. All revenue and expense items that are the same in two models become neutral when

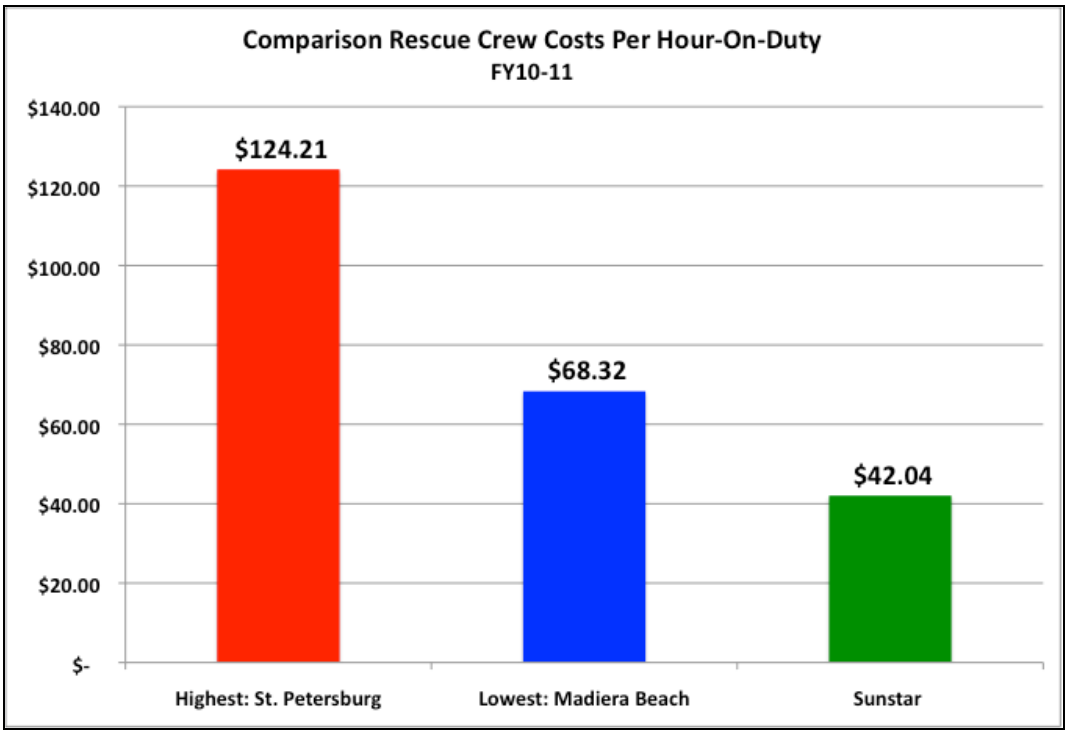
comparing the models, and ARE NOT a metric for distinguishing between the models. Thus, personnel costs serve as the dominant metric that distinguishes between models.

CREW HOURS-ON-DUTY VS. HOURS-ON-TASK FOR HYBRID MODEL

Crew Costs Per Hour Summary

Personnel costs are recognized as the largest cost burden for ambulance and fire organizations. "Crew cost" in this report is defined as the direct cost of salary, benefits and the staffing multiplier necessary to operate an ALS capable rescue unit with either two Sunstar *positions* or two fire agency *positions*. Crew costs for all 19 Pinellas EMS providers were calculated and reported in the section of this report titled "Crew Costs of Proposals." The wide disparity in crew costs per hour between Sunstar and the lowest and highest cost fire agencies is reflected in Figure 5 below.

Figure 5. Rescue Crew Costs Per Hour Comparison



The substitution of higher cost fire personnel for lower cost Sunstar personnel inevitably results in higher per hour crew costs. The fire agency with the lowest crew cost, Madiera Beach, is 1.6 times more than Sunstar crew costs; the fire agency with the highest crew cost per hour-on-duty, St. Petersburg, is 3 times more than Sunstar crew cost per hour-on-duty.

WORKLOAD COST COMPARISON SUMMARY

In the same manner that there is a wide disparity in crew costs per hour-on-duty between Sunstar and Pinellas fire agencies, there is likewise a wide disparity in the workload factors based on actual experience. Workload speaks to the percentage of time that a crew is active or working on a call. Workload factors measure the productivity and efficiency of crews and of an organization as a whole.

As taken from the historical FY10-11 record, Sunstar crew workload factors are .570 and Pinellas fire agencies have a workload factor of .246 as taken from the simulation SM-2. Workload factors are further clarified in Table 49 below.

Table 49. Workload Comparison

Agency	Workload Factor	Translation
Sunstar	.570 or 57%	For each hour a crew is on duty, they are "active" on a call for 34 minutes of that hour.
Pinellas Fire Agencies	.246 or 25%	For each hour a crew is on duty, they are "active" on a call for 15 minutes of that hour.

Sunstar crews are active (working) twice as many minutes per hour as are Pinellas fire agency crews. This is based on ambulance work, it should be noted that fire departments do more than just ambulance work but since substituting one resource for another is the objective of the hybrid model a common denominator of workload is required.

To evaluate any Pinellas model that substitutes fire personnel for Sunstar personnel, *FITCH* calculated how many hours crews must be on duty in order to obtain one hour of work. Workload factors are the basis of the evaluation and the formulas for calculation are provided Table 50 below.

Table 50. Crew Hours-On-Duty Required to Produce One Hour-On-Task

Agency	Workload Factor	Required Crew Hours-On-Duty
Sunstar	1 hour of work divided by .570 workload factor	= 1.75 crew hours-on-duty required
Fire Agencies	1 hour of work divided by .246 workload factor	= 4.07 crew hours-on-duty required

For a Sunstar crew to actually deliver one crew hour-on-task, Sunstar obtains 1.75 crew hours-on-duty. For each hour that Fire agency rescue crews actually deliver one crew hour-on-task, the fire services must obtain 4.076 crew hours-on-duty.

For each hour that any Pinellas model replaces Sunstar crews with Fire crews, more than two times the number of hours-on-duty have to be obtained. The cost of fire crews is already higher than Sunstar costs and the need for additional hours to make the Hybrid model function further increases costs.

The above sections have summarized the more detailed calculations and explanations that are provided below regarding a Pinellas Hybrid model.

DETAIL OF CALCULATING COST PER HOUR-ON-TASK IMPACT OF WORKLOAD ON PERSONNEL COSTS

The best way to evaluate a cost per call is to determine the crew cost per hour-on-task. Cost per hour-on-task represents the cost of a unit while it is actually doing a call. This allows for an apples-to-apples comparison between what it costs Sunstar to do a call versus what it cost the individual fire departments to do the same call.

The emergency medical transport function in Pinellas County requires the input of a certain total number crew hours-on-task, where crews are actively responding to the needs of patients. The number of hours of required to accomplish transport functions is the same regardless of the provider – Sunstar or fire agency crews.

There are two components to the cost of crew hours-on-task. First, a crew is paid for the entire time it is on-duty, not solely while it is running on a call. The only variable is the level of efficiency of the system as it deploys crews and their ability to handle a specific workload.

Therefore, concept of workload enters the picture. For instance, crews work specific on-duty hours. While on duty, only some fraction can be spent actively responding to the needs of patients. This fraction is referred to as "workload" and is defined as:

Workload = [crew hours-on-task] / [total crew hours-on-duty] [**Eqn. 1**]

What the emergency medical transport function in Pinellas County requires is crew hours-on-task. This metric is obtained by an algebraic rearrangement of Equation 1.

[Crew hours-on-task] = Workload * [total crew hours-on-duty] [**Eqn. 2**]

If one crew hour-on-task is required, then *more* than one crew hour-on-duty must be obtained; the workload factor is always less than 1.00 since it is not possible to be actively on task every minute of every hour primarily because calls are not continuously available.

The workload of a Sunstar crew is 0.57, as taken from the historic record. The workload of fire agency crews is 0.246, as taken from the simulation SM-2 (Sanford/ Millican 2).

For a Sunstar crew to actually deliver one crew hour-on-task, Sunstar has to provide 1.75 hours-on-duty of crew coverage. For a fire agency crew to deliver one hour-on-task, the agency must provide 4.07 hours-on-duty. The table above (Crew Hours-On-Duty Required to Produce One Hour-On-Task) is repeated below for reference.

Table 51. Crew Hours-On-Duty Required to Produce One Hour-On-Task

Agency	Workload Factor Calculation	Crew Hours-On-Duty Required To Produce One Hour-On-Task
Sunstar	1 hour of work divided by .57 workload factor	= 1.75 crew on-duty-hours required
Fire Agencies	1 hour of work divided by .246 workload factor	= 4.07 crew on-duty-hours required

Cost Per Hour-On-Task

The basis for the comparison crew costs per on-duty hour are based on the hourly rescue crew cost developed earlier in the report. For purposes of the Pinellas Hybrid analysis, the crew costs for the highest paid crew and the lowest paid crews were compared to Sunstar crew costs.

The costs are further developed in Table 52 by applying the workload factor required to produce one hour-on-task. Again, the hours-on-task required in the total system remain the same regardless of whether it is Sunstar or fire agencies providing the hours-on-task.

Table 52 below reflects this more refined per hour comparison.

Table 52. Comparison of Hourly On-Duty Crew Cost and Hourly On-Task Crew Costs

Cost Factors	Sunstar Ambulance	St. Petersburg Fire	Madiera Fire
A = 1.00 Crew Hour-On-Task (active work)	1.00	1.00	1.00
B = Historical Workload Factor	0.57	0.246	0.57
C = Crew Hours-On-Duty Required to Obtain 1.00 Hour-On-Task (C = A / B)	1.75	4.07	1.75
D = Cost of 1.00 Rescue Crew Hour-On-Duty	$42.23	$124.52	$68.32
E = Cost of 1.00 Hour-On-Task (E= C x D)	$73.90	$506.18	$119.56
F = Relative Cost 1.00 Crew Hour-On-Task (F = E / Sunstar's Cost for 1.00 Hour-On-Task)		6.80 times Sunstar's Cost	1.62 times Sunstar's Cost

As shown in Table 52 above, the rate for one crew hour-on-duty and the workload of that crew combine to have a compounding effect on the relative cost of running the Pinellas system in any model. The cost differentials do not justify substituting fire personnel for lower cost Sunstar personnel.

The calculations to derive 1.00 Hour-on-Task are presented for all fire agencies in Table 52.

Assuming a one-hour task time per call (this is for ease of calculation) one can easily calculate the cost per call of the system if it is done by one agency or the other. In all of these calculations, *FITCH* assumed that the fire agencies' time-on-task would be no shorter that the Sunstar experience and a one-hour on-task number was used.

The crew cost time-on-task ($$/hour) was then extended by the call volume per district to obtain a total personnel cost for call per district. The increased cost of call by the fire department over cost per call by Sunstar is present in the last column of Table 53.

Table 53. Comparison of Personnel Costs for Sunstar and Fire Department Calls per District

District	Crew Time-on-Task [$$ / hour]		Call Volume	Total Personnel Costs of Call		Increased Cost of Call by FD's
	Sunstar	Fire Crews		By Sunstar	By FD's	
St. Petersburg	$73.90	$506.18	27,083	$ 2,001,434	$ 13,708,873	$ 11,707,439
Clearwater	$73.90	$300.20	14,482	$ 1,070,220	$ 4,347,496	$ 3,277,276
Largo	$73.90	$366.26	12,642	$ 934,244	$ 4,630,259	$ 3,696,015
Pinellas Park	$73.90	$308.83	8,174	$ 604,059	$ 2,524,376	$ 1,920,317
Seminole	$73.90	$327.36	6,062	$ 447,982	$ 1,984,456	$ 1,536,474
Lealman	$73.90	$348.58	4,456	$ 329,298	$ 1,553,272	$ 1,223,974
Palm Harbor	$73.90	$362.03	4,404	$ 325,456	$ 1,594,380	$ 1,268,924
Dunedin	$73.90	$311.54	3,794	$ 280,377	$ 1,181,983	$ 901,606
Tarpon Springs	$73.90	$336.67	2,183	$ 161,324	$ 734,951	$ 573,627
South Pasadena	$73.90	$385.81	1,495	$ 110,481	$ 576,786	$ 466,305
Safety Harbor	$73.90	$349.84	1,432	$ 105,825	$ 500,971	$ 395,146
East Lake	$73.90	$311.75	1,278	$ 94,444	$ 398,417	$ 303,973
Gulfport	$73.90	$270.61	1,200	$ 88,680	$ 324,732	$ 236,052
St. Petes Beach	$73.90	$313.37	1,097	$ 81,068	$ 343,767	$ 262,699
Pinellas Suncoast	$73.90	$406.10	977	$ 72,200	$ 396,760	$ 324,560
Oldsmar	$73.90	$299.84	919	$ 67,914	$ 275,553	$ 207,639
Treasure Island	$73.90	$293.50	712	$ 52,617	$ 208,972	$ 156,355
Madeira Beach	$73.90	$277.72	598	$ 44,192	$ 166,0747	$ 121,885

The cost above do not justify direct substitution of Sunstar by any fire district, this is even more complex since each individual system cannot (based on workload) do the entirety of all its transports and would require some form of support by a private transport provider. This would create a disintegrated system.

Fragmented Systems

A learning from Sanford-Millican 2 is that fragmented systems have a greater cost as at least two transport providers are needed to do the same job. As discussed in Sanford-Millican 2 each individual fire department is unable to meet the entire demands of the system due to the excessive workload this would create. This means that a private provider would be obliged to have vehicles at the ready to back up each fire service. This forces greater idle time into the current highly efficient Sunstar transport system and increases the cost that will be charged by the private provider. Also, the Hybrid model creates noncontiguous coverage areas, which means ambulances are moving across areas rather than stopping in the area, further increasing the idle time. Below is an explanation on the cost of a disintegrated transport system

Under the modified Sanford-Millican Proposal that meets recommendations for workload, the strategy is to use single patch crews on the 12-hour PLU's and to pay these crews at Sunstar rates. This strategy was intended to reduce crew costs for the transport operations but it also serves to compare consolidated operations with fragmented operations. Crews on the 24-hour Rescue apparatus will remain dual patch and will be paid at fire department rates.

Table 54, below, presents the relative time-on-task of fragmented Sunstar system and Rescue crews as well as their utilizations. The significant lesson to be learned from the data in Table 54 is that the fragmentation of the system drops the current utilization of 57% seen in the current Sunstar environment down to 34% in a fragmented fire transport environment under the modified Sanford-Millican Proposal, SM-2. This would be true with Sunstar if the current contract is maintained, at some point in time the county could renegotiate the contract and try to absorb some of the cost of the system by tightening the amount of service it buys from the private provider. Since this would take time it is likely that the numbers that follow would be true for some period of time.

Table 54. Fleet Statistics for Simulation SM-2

Vehicles	Scheduled Unit Hours	Time-on-Task (Hours)	Relative Time-on-Task	Utilization
Fragmented Sunstar	220,565	75,742	45.8%	34.34%
Rescues	367,081	90,302	54.2%	24.60%

In a fragmented system the same units become 70% more expensive than the same crew functioning in the current Sunstar environment. So while the costs for Sunstar remain the same, the cost for the system increases by the necessity of increased idle time due to fragmentation of the system. This finding is congruent with the findings in Monroe County, New York in which the consultants evaluated the difference in cost between a single transporter county system, a two transporter county system and a twenty two transporter county system. In the case of Monroe County, the two transporter system was 25% more expensive than the single transporter model, and the 22 transporter model was 100% more expensive. The 100% inefficiency with 22 transport providers observed in Monroe County obtained even though may of the individual providers utilized volunteer staffing and were, thereby low cost providers. Pinellas has a potential of 19 system providers so the 70% inefficiency is consistent with the 100% inefficiency of the 22 providers in Monroe County, NY.

Table 55. Impact of Workload on the Personnel Cost of a Fragmented Model

Cost Factors		Sunstar Ambulance Service Current	Sunstar Ambulance Fragmented
Hours of Crew-On-Task (active work)	A	1.00	1.00
Workload	B	0.57	0.34
Hours of Crew-On-Shift (coverage)	C = A / B	1.75	2.94
Cost of 1.00 Hour Crew-On-Shift (coverage) *	D	$42.23	$42.23
Cost of 1.00 Hour Crew-On Task	E = C x D	$73.90	$124.16
Relative Cost 1.00 Hour Crew-On Task	F = E / Sunstar	1.0 X	1.7 X

When this fragmented cost is carried forward to each fire district, we can calculate a new cost per call for Sunstar under a fragmented system. These results are presented in Table 56.

Table 56. Impact of a Fragmented System on the Personnel Costs of Transports by Sunstar

District	Sunstar Crew Time-on-Task [$$ / hour]		Call Volume	Total Personnel Costs of Sunstar Calls		Increased Cost of Calls by Sunstar
	Current	Fragmented		Current	Fragmented	
St. Petersburg	$73.90	$124.16	27,083	$ 2,001,434	$ 3,362,625	$ 1,361,191
Clearwater	$73.90	$124.16	14,482	$ 1,070,220	$ 1,798,085	$ 727,865
Largo	$73.90	$124.16	12,642	$ 934,244	$ 1,569,631	$ 635,387
Pinellas Park	$73.90	$124.16	8,174	$ 604,059	$ 1,014,884	$ 410,825
Seminole	$73.90	$124.16	6,062	$ 447,982	$ 752,658	$ 304,676
Lealman	$73.90	$124.16	4,456	$ 329,298	$ 553,257	$ 223,959
Palm Harbor	$73.90	$124.16	4,404	$ 325,456	$ 546,801	$ 221,345
Dunedin	$73.90	$124.16	3,794	$ 280,377	$ 471,063	$ 190,686
Tarpon Springs	$73.90	$124.16	2,183	$ 161,324	$ 271,041	$ 109,717
South Pasadena	$73.90	$124.16	1,495	$ 110,481	$ 185,619	$ 75,138
Safety Harbor	$73.90	$124.16	1,432	$ 105,825	$ 177,797	$ 71,972
East Lake	$73.90	$124.16	1,278	$ 94,444	$ 158,676	$ 64,232
Gulfport	$73.90	$124.16	1,200	$ 88,680	$ 148,992	$ 60,312
St. Petes Beach	$73.90	$124.16	1,097	$ 81,068	$ 136,204	$ 55,136
Pinellas Suncoast	$73.90	$124.16	977	$ 72,200	$ 121,304	$ 49,104
Oldsmar	$73.90	$124.16	919	$ 67,914	$ 114,103	$ 46,189
Treasure Island	$73.90	$124.16	712	$ 52,617	$ 88,402	$ 35,785
Madeira Beach	$73.90	$124.16	598	$ 44,192	$ 74,248	$ 30,056

Thus taking the transport system apart increases the costs per call. The Fire transport cost per call is significantly higher than that of the current Sunstar transport model. A more serious implication is that because the fragmented Sunstar system would have to deal with significantly more idle time the cost per call increases for the private provider as well. This is congruent with the findings of Sanford Millican-1. In order for a fully optimized fire transport model to be cost competitive, the system needs to be

reduced by 135 000 unit hours. Even if one assumed that no additional dollars would be spent on the fire system and one allowed the fire departments to transport based on whatever capacity they have, the county would have added an additional 4.675 million dollars to maintain the current level of service (this could be somewhat reduced with a new contract with the private provider, but it would still cost more based on the statements above). Simply put the fragmentation of the transport model introduces to much idle time and non-contiguous territory that adds costs to the system. Based on these findings *FITCH* could not find a justification to fragment the transport system.

SEGREGATING INTER-FACILITY AND EMERGENCY TRANSPORT SERVICES

As part a Pinellas Hybird model, *FITCH* evaluated the idea of segregating inter-facility transports from emergency transports. In this model, fire agencies would handle only emergency medical calls and transports. A contract private provider would handle non-emergency, inter-facility patient transports.

The Hybrid model again results in increased crew costs to fire agencies as higher cost fire personnel are substituted for lower cost Sunstar personnel to transport emergency patients. From the revenue perspective, the collection rates of emergency transport fees are historically in the range of 60% to 70% of charges as opposed to collection rates in the high 90-percentile for inter-facility transports. Inter-facility calls are typically set for a scheduled time thereby allowing crew hours to be even more closely matched to demand; the private provider's costs can be further lowered while fire agency costs increase. Therefore, *FITCH* could not find a justification to fragment the system along these lines.

SUMMARY

FITCH evaluated a Pinellas Hybrid model from multiple perspectives, but is each case encountered the same core impediment: the personnel costs and efficiencies of fire departments compared to Sunstar is too much to overcome. In addition, the geography of Pinellas County requires operations across contiguous areas to be cost effective. Fragmentation on any level incurs inefficiencies and results in higher cost.

Transport revenues are common to the current system and all models. Transport revenues cannot be assumed to uniquely defray the increased personnel costs of any model involving transports by fire agencies.

For the reasons stated above the Hybrid Model was not operationalized using simulation. In our professional experience the best opportunity for reducing costs and maintaining service levels could be achieved through the operationalizing the CARES model.

SIMULATION OF THE OPTIMIZED PLAN (CARES-1)

In developing a plan to optimize and create efficiencies in the current Pinellas EMS system, analysis focused on temporal changes in call volume. This methodology allows for matching of resources (response units) with predictions of calls based on historical data. In Pinellas, the call volume of Fire Emergency- Medical calls and of Fire Emergency-Other calls is much lower at night. Stations that require multiple apparatus for coverage during daylight hours may require fewer apparatus for coverage during night-time hours. Stations that meet these criteria were identified across Pinellas County. Conceptually, apparatus in these stations were decommissioned as 24-hour units and reactivated as 14-hour peak load units, PLUs, operating over the interval 08:00 – 22:00 hours. In the Sanford-Millican Plan and the two simulations, peak load units were exclusively Rescue apparatus. PLUs in the CARES plan may be both Rescues and Squads, and even includes one Truck. Table 57, below, lists the apparatus and station locations of these peak load units for CARES-1.

Table 57. Apparatus Converted to Service as 14-Hour PLUs

Apparatus	Station	
R3	St. Petersburg	Station 3
R4	St. Petersburg	Station 4
R6	St. Petersburg	Station 6
R7	St. Petersburg	Station 7
R11	St. Petersburg	Station 11
R46	Clearwater	Station 46
R47	Clearwater	Station 47
R48	Clearwater	Station 48
R49	Clearwater	Station 49
S38	Largo	Station 38
R41	Largo	Station 41
R42	Largo	Station 42
R33	Pinellas Park	Station 33
S33	Pinellas Park	Station 33
R34	Pinellas Park	Station 34
R19	Lealman	Station 19
S65	Palm Harbor	Station 65
S29	Seminole	Station 29
T69	Tarpon Springs	Station 69

Table 58. Summary Inventory of Apparatus for CARES-1

Apparatus Type	Inventory
Rescues	11
PLUs	19
Engines ALS	46
Engines BLS	5
Trucks ALS	7
Trucks BLS	11
Squads ALS	2
Squads BLS	3
Total # Units	**104**

A consolidated inventory of all apparatus by district for simulation CARES-1 is presented in Attachment E.

A comparison of Sunstar's compliance with its response targets can be obtained from Table 59 and Table 60 below.

Table 59. Comparison of Response Time Compliance of Sunstar in Simulations HIS-1 and CARES-1

Model	Transports		
	Emergency 10:00 @ 90%	Downgraded Emergency 20:00 @ 90%	Inter-facility 60:00 @ 90%
HIS-1	88.25%	89.14%	94.06%
CARES-1	88.07%	89.18%	94.25%

The compliance of Sunstar against its performance targets in the CARES-1 simulation and in the historic Simulation HIS-1 is indistinguishable.

Table 60. Comparison of Response Times between HIS-1 and CARES-1 for Fire Emergency Medical Calls by District and Countywide

District	Count	Fire Emergency Medical	
		HIS-1	CARES-1
		[min:sec] @ 90%	[min:sec] @ 90%
St. Petersburg	27,083	6:59	7:02
Clearwater	14,482	7:23	7:25
Largo	12,642	6:46	6:52
Pinellas Park	8,174	7:04	7:08
Seminole	6,062	7:17	7:20
Lealman	4,456	6:43	6:53
Palm Harbor	4,404	7:16	7:28

District	Count	Fire Emergency Medical	
		HIS-1	CARES-1
		[min:sec] @ 90%	[min:sec] @ 90%
Dunedin	3,794	7:44	7:46
Tarpon Springs	2,183	8:35	8:40
South Pasadena	1,495	6:27	6:19
Safety Harbor	1,432	8:13	8:10
East Lake	1,278	8:09	7:55
Gulfport	1,200	7:21	7:23
St. Pete Beach	1,097	6:57	7:06
Pinellas Suncoast	977	7:22	7:32
Oldsmar	919	7:13	7:19
Treasure Island	712	8:04	7:56
Madeira Beach	598	7:58	7:32
Redington Beach	384	9:01	8:35
Belleair	376	7:50	8:16
Belleair Bluffs	306	6:41	6:49
Tierra Verde	168	6:43	6:25
Fort Desoto Park	68	14:27	13:01
Oldsmar Contract	4	6:43	5:32
Pinellas County	**94,294**	**7:12**	**7:15**

Table 61. Comparison of Response Times between HIS-1 and CARES-1 for Fire Emergency Other Calls by District and Countywide

District	Count	Fire Emergency Other	
		HIS-1	CARES-1
		[min:sec] @ 90%	[min:sec] @ 90%
St. Petersburg	7,619	6:37	6:38
Clearwater	3,919	6:43	6:46
Largo	2,493	6:25	6:34
Pinellas Park	2,314	6:47	6:56
Seminole	1,533	7:06	7:04
Lealman	884	6:20	6:22
Palm Harbor	1,051	6:49	6:52
Dunedin	785	7:11	7:26
Tarpon Springs	663	7:38	7:44
South Pasadena	229	5:56	5:38
Safety Harbor	375	7:46	7:59
East Lake	373	8:01	8:07
Gulfport	279	7:16	7:10

District	Count	Fire Emergency Other	
		HIS-1	CARES-1
		[min:sec] @ 90%	[min:sec] @ 90%
St. Pete Beach	405	6:41	6:43
Pinellas Suncoast	320	7:37	7:26
Oldsmar	312	6:59	7:12
Treasure Island	220	8:10	7:40
Madeira Beach	199	6:59	7:06
Redington Beach	111	9:01	8:23
Belleair	110	9:18	9:40
Belleair Bluffs	88	6:28	6:28
Tierra Verde	64	7:10	6:56
Fort Desoto Park	24	14:49	13:10
Oldsmar Contract	1	5:30	5:08
Pinellas County	**24,371**	**6:52**	**6:56**

Table 62. Changes in Countywide Response Time Compliance between HIS-1 and CARES-1

Call Type	Call Count	Simulation		
		HIS-1	CARES-1	Change
		%-tile @ 7:30	%-tile @ 7:30	%-tile @ 7:30
Fire Emergency Medical	94,294	91.92%	91.66%	**-0.26%**
Fire Emergency Other	24,371	93.63%	93.22%	**-0.41%**

A 0.26% decrease in compliance for Fire Emergency Medical and a 0.41% decrease for Fire Emergency Other are seen between simulations HIS-1 and CARES-1. The size of the 0.26% decrease is comparable to the statistical noise inherent in the simulation process and is not considered numerically valid. The size of the 0.41% decrease is slightly greater than the statistical noise inherent in the simulation process and may be numerically valid. The 0.26% decrease in compliance corresponds to a 3 second increase in response times for Fire Emergency Medical calls. In the real world, adding 3 seconds to a 7:12 response time has no impact on clinical outcomes. A 0.41% decrease in compliance corresponds to a 8 second increase in response times for Fire Emergency Other calls. In the real world, adding 8 seconds to a 6:52 response time has no impact on the outcomes of fire suppression. *FITCH* is of the opinion the simulation CARES-1 complies with the County performance targets.

Table 63. Fleet Statistics for Simulation CARES-1

Vehicles	DispatchCount	Mileage	ScheduledUnit Hours	Time-on-Task (Hours)	Utilization
PLUs	37,228	103,352	97,076	16,019	16.39%
Rescues	28,803	71,815	92,790	12,122	13.03%
Engines	101,857	302,511	446,760	43,629	9.74%
Trucks	16,631	56,045	157,680	7,063	4.47%
Squads	3,242	12,796	35,040	1,019	2.90%
Fire Fleet	187,721	546,520	829,346	79,853	9.60%
Sunstar Fleet	218,352	2,431,396	296,806	168,375	54.85%
Combined Fleets	406,073	2,977,916	1,126,152	248,228	
Sunstar Transports	**134,790**				

Table 64. Fleet Statistics for Simulation HIS-1

Vehicles	DispatchCount	Mileage	ScheduledUnit Hours	Time-on-Task (Hours)	Utilization
PLUs	0	0	0	0	0.00%
Rescues	73,788	191,329	215,430	31,241	14.46%
Engines	91,152	267,780	446,760	38,989	8.70%
Trucks	7,437	51,507	166,440	6,529	3.91%
Squads	15,353	25,828	70,080	3,099	4.42%
Fire Fleet	187,730	536,444	902,280	79,858	8.85%
Sunstar Fleet	218,369	2,431,272	296,806	168,194	56.67%
Combined Fleets	406,099	2,967,716	1,199,086	248,052	
Sunstar Transports	**134,790**				

The above four tables compare the CARES-1 and HIS-1 simulations. The differences between response time performance of CARES-1 compared to HIS-1 for Fire Emergency Medical and Fire Emergency Other calls are insignificant. One works as well as the other. The CARES-1 simulation shows that scheduled unit hours in the fire fleet decrease by 72,934 compared to the Historic Simulation, HIS-1. This will translate into reduced personnel costs for this proposal. Meanwhile, mileage in the fire fleet increases marginally by 10,076 miles. This will have a negligible effect on operational costs.

Comparing the CARES simulation to the Historic Simulation shows slight differences in response time patterns, which are insignificant at the 90th percentile. It represented less than a few seconds and on average only a couple of seconds in any district.

SIGNIFICANCE OF DIFFERENCES IN RESPONSE TIMES

Tables 65 and 66 present a consolidated tabulation of response times for Fire Emergency Medical and Fire Emergency Other calls by district from the historic CAD and from the five simulations.

Table 65. Comparison of Response Times for Fire Emergency Medical Calls by District and Countywide between Proposals

District	Count	Fire Emergency Medical [min:sec] @ 90%					
		CAD	HIS-1	IPS-1	SM-1	SM-2	CARES-1
St. Petersburg	27,083	6:46	6:59	7:17	6:15	6:03	7:02
Clearwater	14,482	7:11	7:23	7:35	6:44	6:23	7:25
Largo	12,642	6:04	6:46	6:59	6:15	5:50	6:52
Pinellas Park	8,174	6:33	7:04	7:23	6:29	6:10	7:08
Seminole	6,062	6:40	7:17	7:22	6:29	6:09	7:20
Lealman	4,456	5:42	6:43	7:01	5:58	5:42	6:53
Palm Harbor	4,404	6:36	7:16	7:22	6:36	6:26	7:28
Dunedin	3,794	7:02	7:44	7:24	6:51	6:43	7:46
Tarpon Springs	2,183	7:44	8:35	8:25	7:37	7:29	8:40
South Pasadena	1,495	5:11	6:27	6:19	7:07	6:05	6:19
Safety Harbor	1,432	6:32	8:13	8:09	6:53	6:55	8:10
East Lake	1,278	7:29	8:09	8:06	7:41	7:16	7:55
Gulfport	1,200	7:02	7:21	7:32	6:52	6:22	7:23
St. Pete Beach	1,097	6:23	6:57	7:04	8:00	7:20	7:06
Pinellas Suncoast	977	6:59	7:22	7:26	6:53	6:29	7:32
Oldsmar	919	6:13	7:13	8:02	6:49	6:25	7:19
Treasure Island	712	7:24	8:04	7:56	7:46	6:47	7:56
Madeira Beach	598	6:30	7:58	7:26	7:04	6:13	7:32
Redington Beach	384	6:46	9:01	8:37	7:47	7:22	8:35
Belleair	376	7:11	7:50	8:31	7:20	7:08	8:16
Belleair Bluffs	306	6:04	6:41	6:44	6:08	5:35	6:49
Tierra Verde	168	6:33	6:43	6:35	6:40	6:35	6:25
Fort Desoto Park	68	6:40	14:27	12:51	12:24	13:26	13:01
Oldsmar Contract	4	5:42	6:43	5:06	5:48	5:28	5:32
Pinellas County	**94,294**	**CAD**	**HIS-1**	**IPS-1**	**SM-1**	**SM-2**	**CARES-1**
[min:sec] @ 90%		6:43	7:12	7:24	6:34	6:16	7:15
Change from HIS-1				+12 sec	-38 sec	-56 sec	+3 sec
%-tile @ 7:30		91.18%	91.92%	90.75%	95.73%	97.13%	91.66%
Change from HIS-1				-1.17%	3.81%	5.21%	-0.26%

Note 1: The Historic CAD represents raw data response times rather than contract compliance.

Table 66. Comparison of Response Times for Fire Emergency Other Calls by District and Countywide between Proposals

District	Count	Fire Emergency Other [min:sec] @ 90%					
		CAD	HIS-1	IPS-1	SM-1	SM-2	CARES-1
St. Petersburg	7,619	6:48	6:37	7:02	6:35	6:37	7:02
Clearwater	3,919	7:05	6:43	7:02	6:48	6:31	7:25
Largo	2,493	6:23	6:25	6:37	6:24	6:08	6:52
Pinellas Park	2,314	6:47	6:47	7:02	6:41	6:37	7:08
Seminole	1,533	7:17	7:06	7:13	6:55	6:46	7:20
Lealman	884	6:38	6:20	6:38	6:07	5:59	6:53
Palm Harbor	1,051	6:50	6:49	6:47	6:40	6:17	7:28
Dunedin	785	7:30	7:11	7:19	7:17	7:00	7:46
Tarpon Springs	663	8:01	7:38	7:52	7:37	7:14	8:40
South Pasadena	229	6:40	5:56	6:24	6:22	5:28	6:19
Safety Harbor	375	7:03	7:46	7:55	7:26	7:27	8:10
East Lake	373	7:47	8:01	7:52	8:19	7:56	7:55
Gulfport	279	6:50	7:16	7:17	6:56	7:05	7:23
St. Petes Beach	405	6:50	6:41	7:06	6:31	6:01	7:06
Pinellas Suncoast	320	7:39	7:37	7:28	7:05	6:43	7:32
Oldsmar	312	6:24	6:59	7:35	7:10	7:13	7:19
Treasure Island	220	7:33	8:10	7:55	7:20	7:45	7:56
Madeira Beach	199	7:05	6:59	7:14	7:25	6:41	7:32
Redington Beach	111	8:29	9:01	9:05	8:52	8:17	8:35
Belleair	110	8:21	9:18	9:20	8:59	8:39	8:16
Belleair Bluffs	88	6:35	6:28	7:14	6:08	5:38	6:49
Tierra Verde	64	6:13	7:10	6:48	5:53	7:57	6:25
Fort Desoto Park	24	8:48	14:49	13:48	14:56	12:52	13:01
Oldsmar Contract	1	4:58	5:30	4:31	5:29	4:30	5:32
Pinellas County	24,371	**CAD**	**HIS-1**	**IPS-1**	**SM-1**	**SM-2**	**CARES-1**
[min:sec] @ 90%		6:58	6:52	7:07	6:36	6:39	6:56
Change from HIS-1				+15 sec	-16 sec	-13 sec	+ 4 sec
%-tile @ 7:30		92.67%	93.63%	92.37%	93.84%	94.50%	93.22%
Change from HIS-1				-1.26%	0.21%	0.87%	-0.41%

Note 1: The Historic CAD represents raw data response times rather than contract compliance.

Regarding Fire Emergency Medical calls, Tarpon Springs is the only district that does not meet its response time target based on the raw data in the Historic CAD. Tarpon Springs continues to be a hard to serve district across all the proposals, as are East Lake, Treasure Island, Redington Beach, and Fort Desoto Park. Other of the small districts sporadically appear in this hard to serve category. In the simulation of the historic CAD, HIS-1, eight districts exceed the 7:30 target response time. IPS-1 and CARES-1 both exceed this target in 10 districts. The significance of these increased response times is that

they are without significance as demonstrated by the corresponding changes in the countywide response times. IPS-1 sees its Countywide response time increase by only 12 seconds compared to HIS-1, while CARES-1 sees it increase by 3 seconds. Sanford-Millican-2, SM-2, has the fastest response times of any of the proposals. SM-2 achieves this performance through a large increase in resources in the system from 103 apparatus in HIS-1 to 169 apparatus in SM-2. The significance of these decreased response times is that they are without significance as demonstrated by the corresponding change in the countywide response time: between simulation HIS-1 and SM-2 we see a 56 second decrease.

Response times on Fire Emergency Other calls are being judged against an 7:30 target that is being imposed for purposes of comparisons in this report, but does not have the weight of a contractual obligation between the districts and the County. Regarding Fire Emergency Other calls, six districts do not meet the 7:30 target in the CAD, and eight do not meet this target in HIS-1. Tarpon Springs, East Lake, Treasure Island, Redington Beach, and Fort Desoto Park again fall into a hard to serve category. Other of the small districts sporadically appear in this hard to serve category. The significance of these decreased response times is that they are without significance as demonstrated by the corresponding change in the countywide response time for each proposal.

Between simulations HIS-1 and IPS-1, there is a 1.17% decrease in compliance for Fire Emergency Medical and a 1.26% decrease for Fire Emergency Other The size of these changes is well above the statistical noise inherent in the simulation process, and these changes are considered numerically valid. On the other hand, the consequences of these changes on clinical outcomes or fire suppression outcomes in the real world are insignificant. *Fitch* is of the opinion that response times in simulation IPS-1 are insignificantly different from HIS-1 and comply with the County performance targets.

Between simulations HIS-1 and SM-1 there is a 3.81% increase in compliance for Fire Emergency Medical and a 0.21% increase for Fire Emergency Other. The size of the 3.81% increase is well above the statistical noise inherent in the simulation process and is considered numerically valid. The size of the 0.21% increase is comparable to the statistical noise inherent in the simulation process and is not considered numerically valid. The 3.81% increase in compliance corresponds to a 38 second decrease in response time for Fire Emergency Medical calls. In the real world, shaving 38 seconds off of a 7:12 response time has may have some impact on clinical outcomes, but no specific science exists to quantify that. The clinical difference would only apply to a very small subset of calls if at all. *FITCH* is of the opinions that simulation SM-1 complies with the County performance targets, but not does not improve upon these targets to any meaningful degree.

Between simulations HIS-1 and SM-2 there is a 5.21% increase in compliance for Fire Emergency Medical and a 0.87% increase for Fire Emergency Other. The size of these changes is well above the statistical noise inherent in the simulation process and are considered numerically valid. The5.21%% increase in compliance corresponds to a 56 second decrease in response time for Fire Emergency Medical calls. In the real world, shaving 56 seconds off of a 7:12 response time may have some impact on clinical outcomes, but no specific science exists to quantify that. The clinical difference would only apply to a very small subset of calls if at all .The 0.87% increase in compliance corresponds to a 13 second decrease

in response time for Fire Emergency Other calls. In the real world, shaving 13 second off a 6:52 response time has no significant impact on the outcome of fire suppression. *Fitch* is of the opinions that simulation SM-2 complies with the County performance targets, but not does not improve upon these targets over HIS-1 to any meaningful degree.

Between simulations HIS-1 and CARES-1 there is a 0.26% decrease in compliance for fire Emergency Medical and a 0.41% decrease for Fire emergency Other. The size of the 0.26% decrease is comparable to the statistical noise inherent in the simulation process and is not considered numerically valid. The size of the 0.41% decrease is slightly greater than the statistical noise inherent in the simulation process and may be numerically valid. The 0.26% decrease in compliance corresponds to a 3 second increase in response times for Fire Emergency Medical calls. In the real world, adding 3 seconds to a 7:12 response time has no impact on clinical outcomes. A 0.41% decrease in compliance corresponds to a 8 second increase in response times for Fire Emergency Other calls. In the real world, adding 8 seconds to a 6:52 response time has no impact on the outcomes of fire suppression. *Fitch* is of the opinion that response times in simulation CARES-1 is insignificantly different from HIS-1 and complies with the County performance targets.

MPDS DISPATCH LOGIC IN HIS-1, IPS-1, & CARES-1

The actual simulation implementing MPDS dispatch logic was run for CARES-1. The following discussion of outcomes applies to simulations HIS-1, IPS-1, and CARES-1.

Two models were tested for implementing MPDS dispatch logic using ProQA determinants:

- Dispatching only ambulances on calls with alpha, bravo, and omega determinants.
- Dispatching only fire department MFR's on calls with alpha and omega determinants.

The first case involves dispatching only ambulances on calls with alpha, bravo, and omega determinants. This logic has two effects. The utilization of fire department MFR apparatus decreases, but the total unit hours for fire department MFR's does not change because the need for coverage remains unchanged. Fire department crew costs remain unchanged. Response times to the patient will appropriately increase on the low acuity calls towards 10:00 minutes:seconds since a non-emergency incident does not require an emergency response from an ambulance. Since these changes in dispatch apply to low acuity calls, the clinical outcome of these changes in response time will probably be insignificant.

In the current system, there are 24,000 alpha calls that get both a fire department MFR and an ambulance response. The experience of the consultants indicates that the presence of an ambulance on-site encourages patients to request transport.

The second case involves dispatching only fire department MFR's on calls with alpha and omega determinants. This logic has two effects. Utilization of Sunstar ambulances will decrease. Transport revenues will decrease, at least over the short term.

Based on the consultants' experience in other systems, absent the presence of the ambulance on site, *FITCH* estimates there will be 8,000 fewer transports compared to the current system. At present these transports are reimbursed and generate revenue. In the near future, this may not be true. Insurers are changing policy to restrict reimbursements for transports on low acuity calls.

Emergency vehicles driving lights and sirens are significantly more at risk for a traffic accident than vehicles driving at normal road speeds. Driving hot (lights and sirens) places the general population at risk. Ethically, this is an uninformed risk imposed on the general population that must be balanced against a real clinical benefit to the patient. Without a clinical benefit to the patient, there is no justification for imposing any additional risk. MPDS dispatch logic is a tested method for assessing the clinical benefit to the patient.

In summary, utilization and mileage of medical first response apparatus will decrease under MPDS resulting in a slight decrease in operational costs. Personnel costs in the fire departments will remain unchanged because the unit hour needed for coverage remain unchanged. Utilization, mileage, and expenses may change enough in the Sunstar fleet to warrant a renegotiation of the fees paid to Sunstar.

The CARES model recognizes four points related to MPDS:

1. If fire first response was not sent to any alpha (low acuity) calls the reduction does not translate into cost savings since the volume and clustering of the alpha calls do not allow for the removal of apparatus.
2. Alpha calls are a community responsibility in many cases and not a transport responsibility making it better suited to the fire mission.
3. The utilization of fire first response on Alpha calls in Pinellas is appropriate as fire fighters are ALS trained paramedics that have the same skill set as the transport provider.
4. This use of fire fighters sets the county up well in the future for implementation of community paramedic programs, accountable care and alternate medicine pathways.

The use of fire personnel as the primary responder for low acuity calls is not necessarily a cost saving exercise but rather:

1. Who's mission best suits these types of calls
2. Which workload can best tolerate accepting these types of calls
3. In the future, who is best suited for community based paramedicine and accountable healthcare requirements.

CONSOLIDATED TABLES OF FLEET STATISTICS

The following tables provide consolidate fleet statistics from the simulation of fleet statistics from the simulations. These tables are repeated from prior text to make it more convenient for the reader to compare results between proposals. A consolidated inventory of apparatus by type and district for all proposals can be found in Attachment F.

Table 67. Fleet Statistics from Historic CAD

Vehicles	DispatchCount	Mileage[1]	Scheduled Unit Hours	Time-on-Task (Hours)	Utilization
PLUs[2]	0	0	0	0	0.00%
Rescues	73,788	not available	215,430	31,511	14.63%
Engines	91,152	not available	446,760	36,625	8.20%
Trucks	7,437	not available	166,440	9,031	5.43%
Squads	15,353	not available	70,080	4,349	6.21%
Fire Fleet	187,730	not available	898,710	81,516	9.07%
Sunstar Fleet	218,369	not available	296,806[2]	156,981	52.89%
Combined Fleets	406,099	not available	1,199,086	238,497	
Sunstar Transports	**134,790**				

[1]Mileage statistics are not available from historic CAD data.

[2]Sunstar logged an additional 9,341 unit hours.

Table 68. Fleet Statistics for Simulation Historic Simulation (HIS-1)

Vehicles	DispatchCount	Mileage	Scheduled Unit Hours	Time-on-Task (Hours)	Utilization
PLUs	0	0	0	0	0.00%
Rescues	73,788	191,329	215,430	31,241	14.46%
Engines	91,152	267,780	446,760	38,989	8.70%
Trucks	7,437	51,507	166,440	6,529	3.91%
Squads	15,353	25,828	70,080	3,099	4.42%
Fire Fleet	187,730	536,444	898,710	79,858	8.89%
Sunstar Fleet	218,369	2,431,272	296,806[2]	168,194	56.67%
Combined Fleets	406,099	2,967,716	1,199,086	248,052	
Sunstar Transports	**134,790**				

Table 69. Fleet Statistics for Simulation IPS-1

Vehicles	DispatchCount	Mileage	Scheduled Unit Hours	Time-on-Task (Hours)	Utilization
PLUs	0	0	0	0	0.00%
Rescues	0	0	0	0	0.00%
Engines	143,944	439,336	446,760	60,450	13.53%
Trucks	33,017	103,578	166,440	14,556	8.75%
Squads	10,786	37,642	70,080	4,775	6.81%
Fire Fleet	187,747	580,556	683,280	79,781	11.71%
Sunstar Fleet	218,369	2,437,293	296,806	168,577	56.80%
Combined Fleets	406,099	3,017,849	980,086	248,358	
Sunstar Transports	**134,790**				

Table 70. Fleet Statistics for Simulation Sanford-Millican-1 (SM-1)

Vehicles	DispatchCount	Mileage	Scheduled Unit Hours	Time-on-Task (Hours)	Utilization
PLUs	41,231	631,567	70,080	44,864	62.18%
Rescues	166,234	1,523,845	315,360	128,832	40.84%
Engines	110,775	308,068	446,760	37,803	8.44%
Trucks	16,613	53,453	166,440	5,958	3.57%
Squads	7,150	24,458	70,080	2,501	3.57%
Fire Fleet	342,003	2,541,390	1,068,720	219,958	20.58%
Sunstar Fleet	0	0	0	0	0
Combined Fleets	342,003	2,541,390	1,068,720	219,958	
Rescue Transports	101,972				
PLU Transports	32,818				
Total Transports	**134,790**				

Table 71. Fleet Statistics for Simulation Sanford-Millican-2 (SM-2)

Vehicles	DispatchCount	Mileage	Scheduled Unit Hours	Time-on-Task (Hours)	Utilization
PLUs	90,016	850,339	210,240	75,742	36.00%
Rescues	112,622	951,997	376,680	90,302	24.00%
Engines	114,553	297,282	446,760	33,786	7.56%
Trucks	17,632	53,003	166,440	5,125	3.08%
Squads	7,436	23,328	70,080	2,027	2.89%
Fire Fleet	342,259	2,175,949	1,270,200	206,982	16.30%
Sunstar Fleet	0	0	0	0	0.00%
Combined Fleet	342,259	2,175,949	1,270,200	206,982	
Rescue Transports	75,631				
PLU Transports	64,159				
Total Transports	**134,790**				

Table 72. Fleet Statistics for Simulation CARES-1

Vehicles	DispatchCount	Mileage	Scheduled Unit Hours	Time-on-Task (Hours)	Utilization
PLUs	37,228	103,352	97,076	16,019	16.39%
Rescues	28,803	71,815	92,790	12,122	13.03%
Engines	101,857	302,511	446,760	43,629	9.74%
Trucks	16,631	56,045	157,680	7,063	4.47%
Squads	3,242	12,796	35,040	1,019	2.90%
Fire Fleet	187,721	546,520	829,346	79,853	9.60%
Sunstar Fleet	218,352	2,431,396	296,806	168,375	54.85%
Combined Fleets	406,073	2,977,916	1,126,152	248,228	
Sunstar Transports	**134,790**				

Table 73. Comparison of Dispatch Counts by Simulation

Dispatch Counts	Simulations				
	HIS-1	IPS-1	SM-1	SM-2	CARES-1
PLUs	0	0	41,231	90,016	37,288
Rescues	73,788	0	166,234	112,622	28,703
Engines	91,152	143,944	110,775	114,553	101,857
Trucks	7,437	33,017	16,613	17,632	16,631
Squads	15,353	10,786	7,150	7,436	3,242
Fire Fleet	187,730	187,747	342,003	342,259	187,721
Sunstar Fleet	218,369	218,369	0	0	218,352
Combined Fleets	406,099	406,099	342,003	342,259	406,073

Table 74. Comparison of Mileage by Simulation

Mileage	Simulations				
	HIS-1	IPS-1	SM-1	SM-2	CARES
PLUs	0	0	631,567	850,339	103,352
Rescues	191,329	0	1,523,845	951,997	71,815
Engines	267,780	439,336	308,068	297,282	302,511
Trucks	51,507	103,578	53,453	53,003	56,045
Squads	25,828	37,642	24,458	23,328	12,796
Fire Fleet	536,444	580,556	2,541,390	2,175,949	546,520
Sunstar Fleet	2,431,272	2,437,293	0	0	2,431,396
Combined Fleets	2,967,716	3,017,849	2,541,390	2,175,949	2,977,916

Table 75. Comparison of Scheduled Unit Hours by Simulation

Scheduled Unit Hours	Simulations				
	HIS-1	IPS-1	SM-1	SM-2	CARES
PLUs	0	0	70,080	220,565	97,076
Rescues	215,430	0	311,790	367,081	92,790
Engines	446,760	446,760	446,760	448,090	446,760
Trucks	166,440	166,440	166,440	166,938	157,680
Squads	70,056	70,056	70,056	70,138	35,040
Fire Fleet	898,686	683,256	1,065,126	1,272,812	829,346
Sunstar Fleet	296,806	296,806	0	0	296,806
Combined Fleets	1,195,492	980,062	1,065,126	1,272,812	1,126,152

Table 76. Comparison of Time-on-Task[1] by Simulation

Time-on-Task	Simulations				
	HIS-1	IPS-1	SM-1	SM-2	CARES
PLUs	0	0	44,864	75,742	16,019
Rescues	31,241	0	128,832	90,302	12,122
Engines	38,989	60,450	37,803	33,786	43,629
Trucks	6,529	14,556	5,958	5,125	7,063
Squads	3,099	4,775	2,501	2,027	1,019
Fire Fleet	79,858	79,781	219,958	206,982	79,853
Sunstar Fleet	168,194	168,577	0	0	168,375
Combined Fleets	248,052	248,358	219,958	206,982	248,228

[1]Time-on-Task is in units of hours.

Table 77. Comparison of Utilizations by Simulation

Utilization	Simulations				
	HIS-1	IPS-1	SM-1	SM-2	CARES
PLUs	0.00%	0.00%	62.18%	34.34%	16.39%
Rescues	14.46%	0.00%	41.21%	24.60%	13.03%
Engines	8.70%	13.53%	8.44%	7.54%	9.74%
Trucks	3.91%	8.75%	3.57%	3.07%	4.47%
Squads	4.41%	6.82%	3.56%	2.89%	2.90%
Fire Fleet	8.86%	11.68%	20.56%	16.26%	9.60%
Sunstar Fleet	54.80%	56.80%	0%	0.00%	54.85%
Combined Fleets					

CREW COSTS OF PROPOSALS

APPROACH TO COSTING COMPARISONS

One purpose of this report is to compare the costs the IPS and Sanford-Millican Proposals along with a newly developed CARES model for Pinellas County fire and EMS services. During simulation processes, Sanford-Millican was amended to two separate deployment models so that there are now four models to be compared for costing purposes.

A typical approach to comparing proposals is based on the concepts of cost-performance analysis. In such comparisons, a change in performance is designed into the system, which results in a change in the cost of the system. In applying this method, rational comparisons between proposals are based on changes to the cost-performance ratios.

Comparing cost-performance ratios sounds straightforward on paper. In reality, these comparisons become very subjective and non-quantitative. Cost is easily quantified: the metric being dollars. Performance values are subjective and not easily quantified. When seven seconds are shaved off a 7:30 minutes:seconds response time, how many dollars should go towards buying this increased performance? This question does not lend itself to an easy quantitative answer.

In keeping with the County's directives to the Consultants to design comparisons, *FITCH* constructed the proposal comparison framework to show that resources allocated to each proposal are adjusted to provide the ***same*** level of emergency medical and fire service performance in each case. Approaching the comparisons in this way results in the powerful virtue of avoiding subjective judgments regarding the dollar value of specific changes in performance. A change in resources between proposals results in a quantifiable change in cost, **but results in no change in performance**. Proposals can then be compared based solely on **differences** in cost.

Focusing on **differences** allows the calculation to be simplified. To get an answer when looking at differences in costs, it is not necessary to calculate all the cost items of a proposal. It is only necessary to calculate those cost items that *change*.

If a cost item is common to two proposals, that cost item becomes neutral when the costs of the two proposals are subtracted from each other. This in no way denigrates the importance of the common functions, but rather holds constant the costs of those functions that are deemed common in the four models. The implication of this point is that common cost items add nothing to the validity of the comparison between the proposals. The same logic applies to transport revenues. Transport fees are common among all proposals and confer no special benefit on any single proposal.

It is implicit that different organizations will provide some of the administrative practices differently. But at this point, any function that cannot be affirmatively substantiated by all stakeholders as different from one model to the other is not considered in this exercise.

Therefore, the costs associated with functions of governance, accountability and logistics as described in a later section of this report were assumed not to vary from one model to the other.

There remain real challenges specifically for implementation of the Sanford-Millican models. Some would argue that these models will require significant additional administrative and coordination costs. These costs cannot be accurately quantified; they are dependent upon decisions which are not made by the county and will vary based on the specific manner each of the 18 independent agencies elect to organize administrative services. That said, costing for comparison purposes focused on the single dominant cost in EMS and fire organizations — that of the cost to staff response units.

DEVELOPING CREW COSTS

Each year, as part of the EMS funding process, fire agencies submit budget documents to the County detailing salaries, benefits and other EMS costs items. The budget forms include salary information for individual firefighter/paramedics (regular salary and special pay) and benefit costs specific to individuals: FICA, retirement contributions, group life insurance, group health insurance, weekly income benefits, worker compensation insurance, and unemployment compensation fund.

To determine crew costs, the salaries, benefits and relief staffing multiplier specific to each fire agency were combined and then an average number was derived per firefighter/paramedic. The costs were based on FY10-11 budget submittals and later confirmed or amended, based on input directly from individual fire agency Fire Chiefs. Benefits and the staffing multiplier differ from agency to agency. Table 78 below is an example of calculation for one of the agencies.

Table 78. Sample Calculation of Annual Crew Cost for One Position or Seat

Firefighter/Paramedic		Values	Calculations
Average Annual Salary/Employee	A	$72,205	
Benefit Percentage	B	50.78%	
Benefit Cost	C	$36,666	C= A x B
Annual Cost/Employee	**D**	**$108,871**	D = A + C
Staffing Multiplier	E	3.45	
Annual Cost per Position or *Seat*	***F***	**$375,604**	F = D x E
Rescue Unit Staffing (FF/Medics)	G	2	
Annual Cost To Staff Fire Rescue Unit	**H**	**$751,208**	H = F x G
Annual hours: 24 hr x 365 days	J	8,760	
Crew Cost per Staffed Unit Hour	**K**	**$85.75**	K = H / J

Salaries, benefit percentages and staffing multipliers are specific to each fire agency in Pinellas County. Table 79 below depicts crew costs per hour for a staffed fire rescue unit in the Pinellas system that are staffed with two firefighter/paramedics.

Table 79 below reflects the annual crew cost to staff a fire rescue unit by fire agency and the crew.

Table 79. Crew Cost for One Rescue Apparatus by District

District	Crew Cost for One Rescue Apparatus	
	Per Year	Per Hour
St. Petersburg	$1,088,090	$124.21
Clearwater	$646,958	$73.85
Largo	$789,252	$90.10
Pinellas Park	$661,204	$75.48
Seminole	$705,486	$80.53
Lealman	$751,208	$85.75
Palm Harbor	$780,130	$89.06
Dunedin	$671,372	$76.64
Tarpon Springs	$725,502	$82.82
South Pasadena	$615,920	$70.31
Safety Harbor	$753,892	$86.06
East Lake	$671,786	$76.69
Gulfport	$583,146	$66.57
St. Pete Beach	$675,334	$77.09
Pinellas Suncoast	$875,094	$99.90
Oldsmar	$646,114	$73.76
Treasure Island	$632,441	$72.20
Madeira Beach	$598,484	$68.32

Sunstar's contractor, Paramedics Plus, staffs its ambulances with one paramedic and one emergency medical technician (EMT). The staffing relief multiplier is 4.00 and benefit costs are substantially lower than those in fire agencies. Sunstar's annual crew costs and unit hour crew cost are below in Table 80.

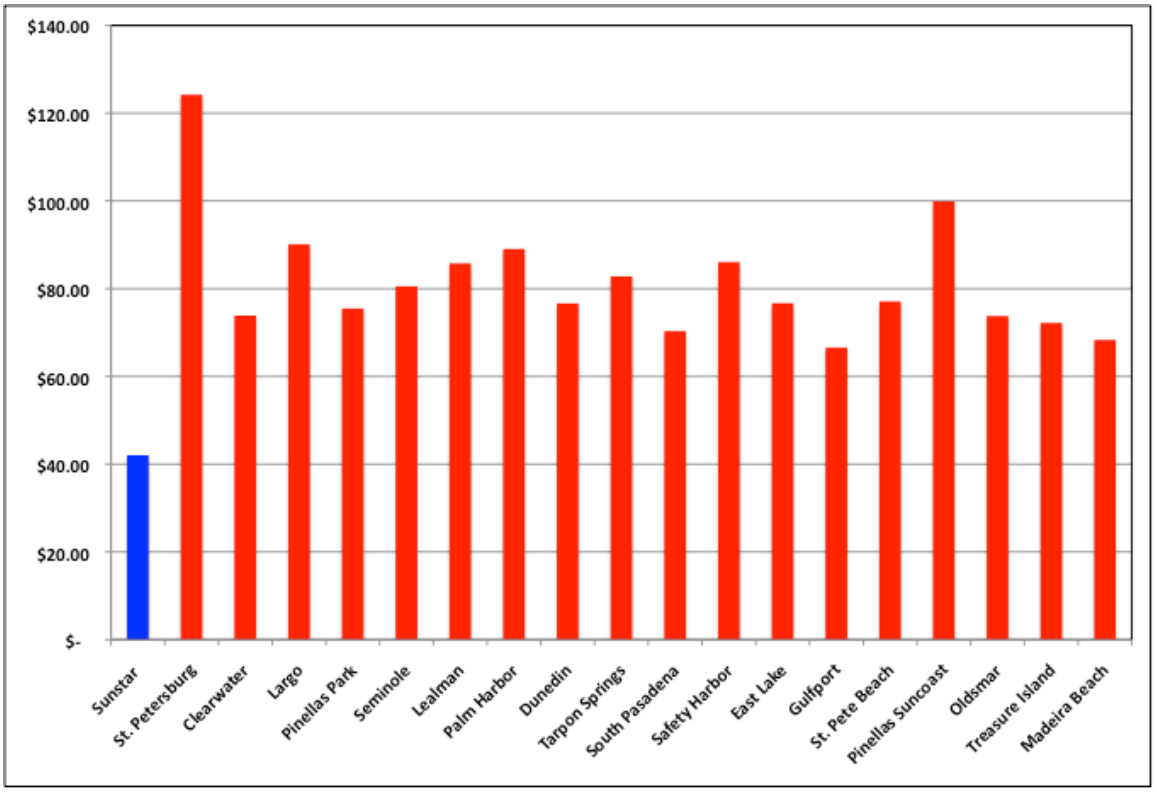
Table 80. Sunstar Crew Cost for One Ambulance

Sunstar Crew Cost for One Ambulance			
Paramedic Position	EMT Position	Crew Cost per Year	Crew Cost per Hour
$210,299	$157,955	$368,254	$42.04

For comparison purposes, Figure 6 below reflects the crew cost by District to staff one rescue for one hour and for Sunstar to staff ambulance for one hour. The unit hour cost includes only the cost of the positions to staff the unit and does not include any operational costs.

Figure 6. Comparison of Rescue/Ambulance Unit Hour Crew Costs

Note: Hourly rates reflect fire rescue staffing of 2 FF/paramedics and Sunstar staffing of 1 paramedic and 1 EMT.



Development of full costing required that an equipment inventory be available for Historic Simulation, IPS-1, Sanford-Millican-1 and Sanford-Millican-2 and the Pinellas Optimized Proposal (CARES-1). Typical staffing of units is indicated in Table 81 below. These staffing patterns were used in calculations of crew costs for each agency and each model.

Table 81. Apparatus Staffing for Unit Costing

	Firefighter					Non-Firefighter
Personnel	Engine		Truck		Rescue	Sunstar Ambulance
	ALS	BLS	ALS	BLS		
Paramedic	1	0	1	0	2	1
EMT	2	3	2	3	0	1

Squads are not included in the above table as there is no consistent staffing pattern for these units. The actual staffing of squads for each agency was included in the costing calculation, based on feedback from the agency's Fire Chief.

Peak Load (non-24-hour) rescues staffing consist in all models of one paramedic and one EMT as follows:

- For SM-1: non-firefighter paramedics and EMTs (single patch)
- For SM-2: non-firefighter paramedics and EMTs (single patch)
- For CARES-1: firefighter/paramedics and firefighter/EMTs (double patch)

In each model, staffing and calculations were matched to the equipment inventories used in the simulations and staffing for each apparatus matched its ALS or BLS designation.

Spreadsheets were developed to replicate staffing of units as noted above and applied crew costs as appropriate. Peak load unit crew costs for Sanford-Millican were costed at 12 hours a day and for the Pinellas Optimized Proposal at 14 hours a day.

Total unit hours per model were cross-checked to assure that simulations and equipment inventories matched.

Table 82 below summarizes the equipment inventory for each model as vetted by the Fire Chiefs on or before 17 June 2013.

Table 82. Apparatus Inventory for All Proposals

Apparatus Count24-Hour Units	Historic Simulation	IPS-1	SM-1	SM-2	CARES-1
Engines	51	51	51	51	51
Trucks	19	19	19	19	18
Squads	8	8	8	8	5
Rescues	25	0	36	43	11
Totals	**103**	**78**	**114**	**121**	**85**
Peak Load Units	**0**	**0**	**16 12-hour PLU's**	**48 12-hour PLU's**	**19 14-hour PLU's**

Attachments A through E detail the equipment inventory and indicate which units are ALS vs. BLS for staffing and costing purposes for each model.

Table 83 and Table 84 below indicate crew costs for each model and the corresponding unit hours.

Table 83. Comparison of Crew Costs between Proposals

System Crew Costs	HIS-1	IPS-1	SM-1*(Single Patch)*	SM-2*(Single Patch)*	CARES-1*(Double Patch)*
St. Petersburg	$33,342,804	$22,861,553	$34,947,124	$34,595,541	$30,784,541
Clearwater	$12,559,074	$8,569,930	$13,295,581	$15,052,329	$11,354,761
Largo	$11,503,344	$9,194,783	$12,660,850	$14,975,861	$10,472,384
Pinellas Park	$6,777,340	$4,793,728	$6,727,750	$7,697,974	$6,223,582
Seminole	$5,622,712	$5,622,712	$7,217,810	$7,954,317	$5,055,204
Lealman	$3,906,281	$3,155,073	$4,841,615	$5,393,996	$3,571,367
Palm Harbor	$4,934,320	$4,934,320	$6,678,706	$6,862,832	$4,633,645
Dunedin	$2,838,247	$2,970,467	$4,180,990	$4,246,126	$2,838,247
Tarpon Springs	$2,829,459	$2,829,459	$3,554,961	$3,923,214	$2,267,194
South Pasadena	$1,454,804	$867,216	$1,454,804	$1,823,057	$1,454,804
Safety Harbor	$1,837,623	$1,837,623	$2,591,515	$3,143,895	$1,837,623
East Lake	$2,675,352	$2,675,352	$3,347,138	$3,347,138	$2,675,352
Gulfport	$807,657	$807,657	$807,657	$1,574,930	$807,657
St. Pete Beach	$2,431,505	$1,810,137	$2,431,505	$2,431,505	$2,431,505
Pinellas Suncoast	$2,432,761	$2,432,761	$3,307,855	$3,307,855	$3,259,725
Oldsmar	$1,526,325	$880,211	$1,064,337	$1,526,325	$1,526,325
Treasure Island	$853,795	$853,795	$853,795	$1,486,236	$853,795
Madeira Beach	$807,953	$807,953	$807,953	$1,590,564	$807,953
Fire Total	**$99,141,354**	**$77,904,729**	**$110,771,946**	**$120,933,696**	**$92,855,663**
Sunstar Total	**$12,869,837**	**$12,869,837**	**$0**	**$0**	**$12,869,837**
System Total	**$112,011,191**	**$90,774,566**	**$110,771,946**	**$120,933,696**	**$105,725,500**
Compare to HIS-1		***$(21,236,625)***	***$(1,239,245)***	***$8,922,506***	***$(6,285,691)***

Note 1: The Executive Summary Comparison Table includes the significant cost of Fleet Operations in the IPS Proposal.
Note 2: Sunstar unit hours includes an additional 9,341 hours.

Table 84. Comparison of Unit Hours between Proposals

Unit Hours	HIS-1	IPS-1	SM-1*(Single Patch)*	SM-2*(Single Patch)*	CARES-1*(Double Patch)*
Fire Services	902,280	683,280	1,068,720	1,270,200	841,690
Sunstar	306,147	306,147	-		306,147
Total	**1,208,427**	**989,427**	**1,068,720**	**1,270,200**	**1,147,837**
Diff from HIS-1		*(219,000)*	*(139,707)*	*61,773*	*(60,590)*

Single patch personnel are non-firefighters assumed to be hired from the Sunstar pool of employees. Double patch personnel are firefighters most of whom are already in the Pinellas system.

It is important to note that patient transport functions represent a significant change in job description for Pinellas firefighters. Call time-on-task will be significantly longer than for medical first response calls;

fire personnel will be with ill and injured patients in the confined space of the transport unit which increases the potential for disease contamination; mastering patient records to meet insurance, Medicare and Medicaid regulations requires intense ongoing training. It is typical for fire personnel who staff transport units to receive some level of premium or incentive pay of between 3 to 5% on base salary. This is noted in the letter sent by the working committee that labor expects to participate in the Pinellas County Council of Firefighters financial abstract included a five percent (5%) salary increase for Firefighter Paramedics assigned to transport duties.[13]

Throughout the report, *FITCH* chose to give the benefit of any doubt to fire agencies. Likewise, we make note of the fact that firefighters will eventually receive increased pay for performing transports, but no additional sums are included in the crew costs in this report.

[13] Letter dated May 6, 2009, from Frank P. Edmunds, City Manager, City of Seminole, to Robert S. LaSala, Pinellas County Administrator regarding findings of a committee comprised of City Managers, City and Fire District Fire Chiefs, and County Administration, titled "Analysis Of The Hybrid Transport Proposal "

RESERVE CAPACITY

IPS PROPOSAL

The IPS Proposal decommissions 25 Rescues (24-hour apparatus) in a fleet of 103 apparatus, decreases unit hours by 24%, and, based on the simulation IPS-1, the system still achieves its performance targets. This finding serves as an operational definition of reserve capacity in the system. This finding is the most important single lesson to be learned from the IPS proposal.

SANFORD-MILLICAN PROPOSAL

The Sanford-Millican Proposal points to the presence of reserve capacity in the current system in two ways.

First, the personnel costs of SM-1 are almost equal to the personnel costs of the current system. This is a most curious outcome. In the current system, all of the positions on transport units are filled by lower cost Sunstar employees. In the SM-1 model, more than half of the positions on transport units are filled by higher cost fire department employees. Yet, the personnel cost of SM-1 is slightly less than in the current system. Reserve capacity already existing within the fire departments serves to internally subsidize the increased costs of using firefighters to staff medical transport units.

Second, the Sanford-Millican Proposal decommissions the Sunstar fleet and transfers responsibilities for patient transports requiring 296,806 unit hours to the fire fleet. Yet, the fire fleet adds only 162,846 unit hours of capacity to the current system. Based on simulation SM-1, the system still achieves its performance targets. The shortfall of 133,960 unit hours must have already been available within the current system as "excess reserve capacity." See Table 85 below. These unit hours are equivalent to approximately 15 24-hour apparatus.

Table 85. Changes in Fleet Unit Hours Between Simulations HIS-1 and SM-1

Fleet	Scheduled Unit Hours		Difference
	SM-1	HIS-1	
Sunstar Fleet	0	296,806	296,806
Fire Fleet	1,065,126	902,280	162,846
		Reserve Capacity	133,960

The IPS and Sanford-Millican Proposals take radically different approaches to modifying the current system. It is significant that Proposals as disparate as IPS and Sanford-Millican teach the same lesson regarding the existence of reserve capacity in the current system and teach almost the same lesson on the amount of reserve capacity present. Some reserve capacity must exist in the system since Pinellas county is in a zone of natural disasters and major incidents. This means that any system design cannot remove all the reserve capacity or Pinellas will no longer be self-reliant.

IMPLEMENTATION PLANS/ORGANIZATION CHARTS

The IPS Proposal and the CARES plan utilize the current system structure, and its implementation is much simpler than that of Sanford-Millican. In contrast, the Sanford-Millican Proposal potentially changes oversight and transfers all functional elements required to accomplish patient transport to the 18 independent fire agencies and Cities/Districts. Below are operational and human resources implementation plans for all three models.

IPS PROPOSAL IMPLEMENTATION

Implementation of the IPS Proposal requires no change in Sunstar operations, current system oversight or infrastructure. The plan below assumes that the cities and fire district elected bodies adopt the IPS Proposal in its entirety. The other assumption, based on the number of firefighter/paramedics currently in the Pinellas system, is that there would be enough ALS personnel in each fire agency to upgrade the appropriate number of non-rescue vehicles. The fact that current Rescue apparatus are decommissioned should result in an excess of firefighter/paramedics.

With these key assumptions, the proposal moves to implementation. Tasks are listed below that are needed to effect the change. Each task is coupled with a comment regarding entities that are to participate in accomplishing the task along with and a complexity rating of 1 to 3 with 1 being the least complex and time consuming and 3 being the most complex and time consuming.

Table 86. IPS Operational and Human Resources Implementation Plan

Operational Plan Tasks	Entities Involved	Complexity Rating
Inventory current non-rescue fleet and determine the number that need to be upgraded from BLS to ALS	Fire Agencies	1
Inventory equipment on rescues to determine what can be transferred to non-rescues that will be upgraded	Fire Agencies	1
Review non-rescue fleet licenses with State and apply for upgrades as needed; decommission current rescue licenses	Fire Agencies and State	1
Review reserve non-rescue fleet management plans (operating and capital) and adjust (increase) budgets to compensate for additional mileage anticipated	Fire Agencies	2
Advise dispatch of the unit changes	Fire Agencies, Dispatch	1
Human Resources Tasks	**Entities Involved**	**Complexity Rating**
Inventory current firefighter to determine number of personnel (paramedics and non-paramedics) needed to staff fewer vehicles	Fire Agencies	1
Develop attrition and/or layoff plan for excess fire personnel and adjust budgets as needed	Fire Agencies, Labor, City/District Human Resources	3

Most all of the tasks for IPS implementation would move forward simultaneously.

The organizational chart for the IPS Proposal exactly reflects the organization chart of the current system. The current system structure remains intact, Sunstar remains intact and fire agencies do not change. Inclusion of the County's existing organizational chart makes no material contribution to this report.

SANFORD-MILLICAN PROPOSAL IMPLEMENTATION

The operating and human resources plans below describe the significant tasks to implement Sanford-Millican. Many of the functions will need to occur simultaneously. As in the IPS Implementation Plan, a complexity rating of 1 to 3 is assigned with 1 being a less complex task and 3 require extraordinary coordination generally of several organizations.

Implementation of Sanford-Millican will require that at least one individual be tasked with coordinating 18 fire agencies and their respective elected bodies, liaison with legal counsel, hospital and healthcare facilities, and handle contracting and intergovernmental agreements as necessary. This person will be deemed the Transition Manager and will be involved in all of the tasks below.

Operational decisions are intertwined with Human Resources issues. Both are covered in the task list below with *Human Resources Tasks* noted in the "Entities Involved" column.

Table 87. Sanford-Millican Operational/Human Resources Tasks

Operational and Human Resources Tasks	Entities Involved	Complexity Rating
Form a Transition Committee of Fire Agency representatives to guide and make decisions during transition period; membership should include representative of fire agencies, County, legal counsel, and labor, and Sunstar/Paramedics Plus	Fire Agencies, County, Legal, Labor, Sunstar Human Resources	2
Determine whether the current EMS Authority structure will remain in place and determine if the County will continue in this role; if not, determine the corporate structure of the new oversight body; there are some limitations due to the current Special Act.	Board of County Commissioners and Legal Counsel	2
Determine any changes needed to the EMS Ordinance and/or EMS Millage district legislation	State Legislature	2
Repeal or amend current EMS legislation as needed	State, County, Legal	3
Obtain approval resolutions from 18 city and fire district elected bodies to support Proposal implementation	Cities/District Elected Bodies	2
Determine course of action should any of the 18 cities or districts not approve of Proposal implementation; legal counsel may be needed	Transition Committee, Legal	3

Operational and Human Resources Tasks	Entities Involved	Complexity Rating
Determine how to handle support functions currently provided by Sunstar personnel: what entity hires the employees; which functions are consolidated or fragmented; what are reporting relationships; what is employee compensation. Functions include: dispatch, fleet maintenance and planning, finance, accounting, budgeting, purchasing, warehouse and supply management and distribution, field clinical supervision, EPCR training, field and clinical training, hospital liaison, non-emergency transport liaison, billing and collection services, customer and patient business services, safety-risk issues, technology support (operations and information), personnel scheduling	Transition Committee, Fire Agencies, Medical Director, City/District Human Resources, Labor *Human Resources Tasks*	3
Determine how to handle operational functions provided by Sunstar operations: non-emergency transport to hospitals and healthcare facilities, critical care transports, mental health transports, All Children's Hospital Transport Team, Tactical EMS Services.	Transition Committee, Fire Agencies, Medical Director, Labor, Hospitals, Healthcare facilities	2
Develop intergovernmental agreements for approval by the 18 cities/districts: agreements to address methodology for funding allocations, voting rights of 18 entities, rectifying non-compliance with response times or tasks that impact revenue generation (PCRs and billable patient reports)	Legal, Cities/districts, Transition Committee, County	3
Inventory Sunstar assets and determine purchase availability, purchase funds/method. Essential items include: • Ambulance CAD • Patient Care Reporting software • Warehouse and supply software and equipment • Miscellaneous equipment/vehicles (all apparatus) • Computer and technology equipment including mobile • Non-proprietary records and software such as: o Ambulance personnel scheduling software o Clinical analysis software o Fleet maintenance equipment o Performance/system status management software o Employee tracking/HR software	Sunstar, Cities/Districts, County	3
Assess fire stations and need for modifications to accommodate additional apparatus and crew space; set timelines for accomplishment, fund and complete prior to hiring	Fire agencies, Cities/Districts	3
Appoint liaisons to Medical Control Board and develop method for all fire agencies/districts to interact with Medical Director	Medical Director, Medical Control Board and Fire Agencies	2
Determine interactions between Medical Director and Labor regarding clinical care issues.	Medical Director, Fire Agencies, Labor *Human Resources Tasks*	3
Address with Medicare and Medicaid issues regarding billing under one entity versus 18 entities to include compliance requirements for HIPAA regulations	Medicare, Medicaid, Federal, State, Legal, Fire Agencies, Transition Committee, County	3

Operational and Human Resources Tasks	Entities Involved	Complexity Rating
Work with County Dispatch expand functions to include ambulance dispatch and to align dispatch functions with new response equipment; hire additional dispatchers as needed	County Communications, Fire Agencies *Human Resources Tasks*	3
Hire Additional Single and/or Double Patch personnel as needed. Consider the following: • New job descriptions, hiring criteria and compensation plans to be developed and adopted by cities/districts to include retirement categories (high risk or not for single patch) • Initiate all hiring processes unique to each jurisdiction • Initiate familiarization and training and academies • Access field supervision and adjust as needed for patient transport functions • Negotiate change in working conditions with fire personnel on transport units	Cities/districts, Tasks, Labor, Legal, *Human Resources Tasks*	3
Determine transition period and notify Sunstar/Paramedics Plus; may require extension of existing contract through transition period and renegotiation of contract; this may need to occur early in the process; legal advice needed	Transition Committee, County, Sunstar / Paramedics Plus, Legal, Cities/Districts	3

The organizational chart for implementation of Sanford-Millican will address all functions now handled by Sunstar. Functions would transfer over from Sunstar to either individual fire agencies or whatever oversight entity is created. A determination needs to be made concerning consolidation versus fragmentation of various functions as described above. Fundamentally, the current system works and all functions are present. No functions will disappear under Sanford-Millican but which entity will perform the functions is to be determined by the Transition Committee, the County and the fire agencies cities and district governing bodies.

If the decision is made in favor of consolidation, the organizational chart will exactly reflect Sunstars' existing structure. Inclusion of the Sunstar's existing organizational chart makes no material contribution to this report.

If the decision is made in favor of fragmentation, the number of possible variations in the structure become so numerous that it is not possible to draw a meaningful organizational chart.

CARES PLAN IMPLEMENTATION

The CARES model identifies specific fire agency apparatus and based on demand, reduces their scheduled hours from 24-hours a day to 14-hours a day. Nineteen apparatus, a combination of 14 Rescues, 1 Trucks and 4 Squads, move to peak load, 14-hour schedules. There is no new apparatus called for in the model.

The implementation plan for CARES assumes that fire agencies will adopt the plan in its entirety. The CARES model does not change the current system in a significant manner. The County's role, that of Sunstar and fire agencies remain the same as the current system. Table 88 below reflects the steps needed to implement the CARES operations and indicates specific tasks in the Human Resources area.

The CARES model identifies the specific apparatus by station number that are to change to a 14-hour schedule. While the total number of unit hours are reduced CARES does not contemplate personnel layoffs. More than likely, attrition will take care of the reduction in unit hours in the model.

Table 88. CARES Operational and Human Resources Implementation Plan

Operational Plan Tasks	Entities Involved	Complexity Rating
Align the CARES model designated units and their hours of operation in 911 Communications and Sunstar Dispatch	Fire Agencies	1
Human Resources Tasks	**Entities Involved**	**Complexity Rating**
Develop personnel scheduling programs to accommodate the 14 hour shift pattern on 19 designated units.	Fire Agencies, Human Resources	1
Review mutual aid agreements to determine any impact of the scheduling change.	Fire Agencies	1
Review current collective bargaining agreements regarding shift patterns allowed.	Fire Agencies, Human Resources	2
Negotiate with Labor and city/district Human Resources Department regarding any shift pattern or other contractual issues.	Fire Agencies, Labor, City/District Human Resources	3
Determine the number of positions (and personnel) needed in each agency under the CARES model.	Fire Agencies, Human Resources	3
Develop an attrition or layoff plan to accommodate the changes.	Fire Agencies, Human Resources	3
Re-bid current positions within each fire agency offering the 14-hour shift pattern on specific apparatus.	Fire Agencies, Labor	2

SUNSTAR AND PINELLAS EMS EXCELLENCE

One of the *FITCH's* tasks was to benchmark the performance of the Pinellas system to other similar systems in North America.

The Pinellas County EMS system is one of the most highly regarded EMS systems in the US. In 2010, the Pinellas System and Sunstar as the key patient transport provider, were included in an exhaustive benchmarking study among the top twenty well-regarded EMS systems across North America.[14] Study results regarding combined with current performance reporting from the County are summarized below.

Sunstar and the Pinellas County system were measured on 74 metrics across 13 categories. The average number of indicators possessed by the systems measured was 47 and the lowest was 12. Sunstar/Pinellas possessed 54 of the metrics. Only one other system in the survey possessed more attributes than Sunstar/Pinellas.

Table 89 below indicates the broad categories against which Sunstar/Pinellas was measured.

Table 89. Benchmarking

Category	Criteria Possessed
Accreditation	4 of 4
Public Education	1 of 1
Communications	4 of 4
Response Time Reliability	10 of 10
Medical First Response	1 of 3
Clinical Care	9 of 12
Customer Focus	3 of 4
Safety	8 of 8
Workforce Focus	5 of 9
Leadership	4 of 4
Operations	2 of 2
Fleet	3 of 4

Only one other system in the survey possessed more attributes than Sunstar/Pinellas. Sunstar and the Pinellas EMS system functions as a high performance system.

The Pinellas County Ambulance Service represents good value to its citizens for the quality of the transport services provided. A competitive bid process is periodically conducted, and since inception of

[14] Benchmarking Report, Regional Emergency Medical Services Authority (REMSA), Reno, NV, Fitch & Associates Consultant Report, May 13, 2010.

the system, has drawn bids from multiple ambulance providers. The ambulance contractor operates under a detailed performance contract wherein transport rates are set by the Authority. . Profit margins are capped for the contractor. Based on FY10-11 information, Paramedics Plus, operating as a for-profit entity in Pinellas County, experienced a unit hour cost of $109.26 per unit hour. . If one includes all the ancillary costs of medical supplies that are paid for by the county, the total unit hour cost is $118.36 per unit hour. The unit hour cost includes crew costs and all other the cost of operations for emergency and non-emergency patient transports, Critical Care Transports, specialized regional neonatal and pediatric Critical Care Transports, and Mental Health van services, dispatch, infrastructure, management and taxes. The per hour unit cost also includes funds reimbursed to the contractor for purchasing and distribution of all medical supplies and drugs in the system and managing the EMS Central Supply Warehouse.[15] The ambulance contractor's costs are comparable with unit hour costs of other high performance systems.

[15] Source: Pinellas County EMS Historical Financial Data provided by Public Safety Services from Audited Comprehensive Annual Financial Reports (CAFR), Clerk's General Ledger, Internal Records, Sunstar Website; payment to contractor for FY10-11 ($33,119,865) plus reimbursement for medical supplies ($3,144,394) = $36,264,259 paid to Contractor. At 306,147 actual unit hours for FY10-11, unit hour costs are $118.36.

ISO RATINGS AND POTENTIAL IMPACT

FIRE INSURANCE RATING

Within their Public Protection Classification (PPC) brochure, the Insurance Services Office, Inc. (ISO) offers the following general statement:

The Community's Public Protection Classification Depends on:

- **Fire Alarm and Communications Systems (10%)**, including telephone systems, telephone lines, staffing, and dispatching systems
- **Water Supply System (40%)**, including condition and maintenance of hydrants, and a careful evaluation of the amount of available water compared with the amount needed to suppress fires. ISO's PPC program evaluates communities according to a uniform set of criteria, incorporating nationally recognized standards developed by the National Fire Protection Association and the American Water Works Association.
- **Fire Department (50%)**, including equipment, staffing, training, and geographic distribution of fire companies.

While the grading schedule is necessarily complex in its complete design and application, the foundation includes the three major components listed above. The first two components have no changes in any of the proposals and will have no impact to any jurisdiction's ISO rating. The third component, Fire Department (50%), does change under all of the proposals. More specifically, equipment and staffing change in all proposals while training and geographic distribution remain stable.

STAFFING AND RESPONSE

For grading within the Class 1 – Class 8 segment, the ISO Schedule stipulates that engine companies are ideally located no more than 1½ road miles from the incident. The deployed companies should contain a minimum of four firefighters responding on the initial alarm; one of the four may be a chief officer. In calculating station staffing, ISO states:

> *"To evaluate the total number of firefighters on duty with companies at the station, take an average over the entire year, considering vacations, holidays, sick leave and other absences."*
>
> *And further...*
>
> *"Credit fire department personnel staffing ambulances or fire department apparatus responding on medical calls if those personnel participate in fighting structure fires. Prorate the credit to reflect the extent to which those personnel are available, respond on the initial alarm to all reported structure fires and perform company duties."*

CLASSIFICATIONS AND POINT VALUES

The ISO grading schedule is based upon a 0 – 100 point schedule. The more points accumulated, the better the ISO rating, as shown in Table 90, below.

Table 90. Relationship of ISO Ratings to PPC Points

ISO	PPC Points
1	90.00 or more
2	80.00 to 89.99
3	70.00 to 79.99
4	60.00 to 69.99
5	50.00 to 59.99
6	40.00 to 49.99
7	30.00 to 39.99
8	20.00 to 29.99
9	10.00 to 19.99
10	0.00 to 9.99

A Class 1 rating reflects optimal protection while a Class 10 applies to jurisdictions with less than minimum protection.

For each Public Protection Classification (Class) there is a range of points. Therefore, a Class 3 jurisdiction that holds a current score of 78 points, in theory could lose 6 – 7 points and yet remain a Class 3. Conversely, a Class 3 jurisdiction that holds a current score of 71 points, in the same scenario, in theory would slip to a Class 4.

CONCLUSIONS

Because of the design of the ISO rating system, it is impractical to accurately assess the absolute impacts of changes without a comprehensive re-rate by an ISO engineer. This said, it is possible to comment on the direction that changes in staffing and apparatus will push the ISO ratings as reflected in Table 91 below.

Table 91. Expected Directionality of ISO Ratings Caused by the Proposals

Element	Proposal			
	IPS	SM-1	SM-2	CARES
Equipment	negative	uncertain	neutral	neutral
Staffing	negative	uncertain	neutral	neutral

IPS decommissions all Rescues and their crews from the system. The directionality of these changes will be negative, but ameliorated by response times insignificantly different from current.

SM-1 adds new 24-hour Rescues and firefighter crews to the system, but the utilization of all the 24-hour Rescues may be so high that there may still be no positive effect on the ISO ratings. Addition of the PLUs in SM-1, staffed with non-firefighter crews, will add no benefit. The net effect of SM-1 on ISO ratings will be uncertain, shading towards neutral, but ameliorated by response times insignificantly different from current.

SM-2 adds new 24-hour Rescues and firefighter crews to the system, and the utilization on all of the 24-hour Rescues becomes low enough that there may be a positive effect on ISO ratings. The addition of non-firefighter crews on peak load units will add no benefit. The net effect of SM-2 on ISO rating will be uncertain, shading towards positive, and reinforced by response times that are insignificantly different from current.

CARES decommissions Rescues and Squads and their crews during periods of low demand during the night. All Engines and all Trucks but one remain fully available. The directionality of these changes is neutral, shading towards negative, but ameliorated by response times insignificantly different from current.

GOVERNANCE, ACCOUNTABILITY AND LOGISTICS

As outlined by the Sanford-Millican Proposal, a shift from system administration and management by Pinellas County Department of Public Safety Services (single-agency) to a multi-agency structure coordinated under a single interlocal provider agreement introduces several system management challenges. These challenges affect three critical functions:

- Governance and Policy
- Operational Accountability
- Logistical Support

In this section, the nature and scope of certain system functions for which the Proposal must account are characterized. *FITCH* notes that the Sanford-Millican Proposal does not adequately give attention to either the manner or the means to perform these critical functions.

In general, during *FITCH's* research on these proposals, advocates for the Sanford-Millican model suggested that critical functions would be accomplished through an "other duties as assigned" approach. Further, the Proposal's budget did not adequately account for many of the costs associated with performing and supporting these functions.

So significant is the number of variables affecting these functions, that we could not reasonably assign costs to them. *FITCH* therefore focused on identifying essential administrative and management functions in the current configuration that are not clearly addressed by the Sanford-Millican Proposal.

To adequately address these essential functions, any interagency system design must include at least one system Administrator, along with associated support staff resources. While *FITCH* strongly recommends the selection of an independent Administrator, the referenced support staff resources could potentially be provided either as (1) employees of the system, (2) contracted service providers or (3) personnel resources loaned from system agencies dependent upon the decisions of the participating agencies. Regardless of the method used to secure the personnel, each resource assigned must clearly and cleanly report to a single Administrator.

GOVERNANCE AND POLICY

This system area includes the following component functions:

- Legislative System Oversight: an interagency body or council comprised of elected officials from the governing bodies of all participating jurisdictions.
- Interagency Agreement(s): develop, negotiate and reach agreement upon any and all necessary interagency agreements (contracts) to define roles, ensure funding and foster accountability and fairness. This includes the functions associated with the management of all contracts.
- Medical Control: a plan or design to effect required medical supervision and control from either a single health care professional (HCP) or a network of HCPs. *FITCH* conjectures that the logistics

associated with medical control across 18 independent jurisdictions are sufficiently complex and labor intensive that the prospect of securing a single HCP for medical control is remote.

- Operational Coordination: an interagency body, board or committee of fire officials from the participating jurisdictions who have decision-making authority for operational policies, budget recommendations (including funding allocations), communications (call receipt and dispatch), dispute resolution and authority to handle non-compliant agencies in a number of areas.
- Budget and Finance: a financial system and management to appropriate, plan for, manage and account for system expenses and revenues. This includes the ability to collect revenue and expend cash, including the billing and collection of system fees and charges, to provide policy recommendations for financial and reserve policies and work with internal and external auditors.

OPERATIONAL ACCOUNTABILITY

This system area includes the following component functions.

- Staffing, Field Supervision and Coordination: plans, organizes and coordinates field operations to ensure consistent operations across jurisdictional lines and interagency operations. This function ensures consistent staffing practices and the ability to rapidly fill vacancies so as to not downgrade service delivery.
- The Sanford-Millican Proposal provides only cursory attention to "staffing" and states, "How these units are staffed is a local decision and should be left as such." Further, "Each City and Special District would be responsible for employing the appropriate number of personnel to meet the staffing demands." This language opens the door to multiple staffing practices, which, if accepted without further review and cost analysis, potentially fail to ensure cost savings touted by the Proposal.
- While not specifically stated, this Proposal infers that peak hour staffing would be accomplished by "call out" or "as typically done for any fire unit." This suggests that peak hour units staffing will be compensated at overtime pay rates; but the actual cost impact of this strategy – pro or con – is left unaddressed. In that peak hour units are key component to cost savings, it is important that this expense be clearly documented.
- The Sanford-Millican Proposal addresses the matter of "supervision" (again in cursory fashion), but fails to address ongoing field coordination. With regard to supervision, the Proposal states, "Specific roles and functions will have to be explored and developed as part of the transition process." This statement leads *FITCH* to conclude that these major system functions remain incomplete in the Proposal. In the course interviews and research with fire agency officials, the Consultant was repeatedly informed regarding the stresses facing their operations due to reductions in administrative support, which lead to the transfer of workload to line managers and supervisors. Yet, the Sanford-Millican Proposal proposes to add further duties and workload to these field personnel without citing any impact.
- The Proposal assigns "supervision" to an existing corps of "unit supervisors or company officers, shift commanders in a district (known as district chiefs) and rescue lieutenants..." Without the benefit of any workload or job function analysis, the Proposal postulates that "...additional supervisory needs...can easily be rolled into the responsibilities of existing personnel." The

concluding Proposal statement on this matter states, “With the use of the funding in this model and the existing fire department supervisory resources, the component of supervision can be effectively and efficiently accomplished.” *FITCH* concludes “the funding in this model” to mean the $20,000 annual “EMS Administration” expense set forth in the Proposal. Nowhere does the Proposal compare/contrast this proposed funding support with actual cost and/or current funding in a manner where an informed comparison, conclusion and decision can be reached.

- *FITCH* concludes that the assumptions and generalized conclusions lack the analysis needed to clearly substantiate the conclusions and assumptions, especially as they are related to cost. The budget exhibits attached to the Proposal offer no insight or reference as to such costs; it appears that the Proposal assumes that these functions can be added/maintained either at a reduced or at current funding levels.
- This Supervision and Coordination function must also ensure planning and readiness for tactical and disaster scenarios. This function also monitors impacts on fire protection readiness and response capability to avert avoidable loss of response capacity.
- Training: ensures current and consistent knowledge and skill levels among agency personnel and supervisors.
- The Sanford-Millican Proposal generally does not address the training of personnel to be fully capable and functional within the restructured system. *FITCH* concludes that the Proposal assumption is that what currently exists for training is sufficient. While there may be suitable EMS training currently occurring within all fire agencies (if so, it is undocumented), there is no provision for regular needs or skills assessment, planning and coordination of this function across the 18 agencies. This opens the door to inconsistency, duplication of effort and increased cost.
- The only training exception within the Proposal is for Electronic Patient Care Reporting (EPCR). The Proposal calls for the purchase, training and implementation of this system within a three-month window. *FITCH* notes that a program shift of this magnitude across literally hundreds of caregivers is a major effort. It is certain to produce bow waves of follow-up training needs, quality control, remediation and ongoing system operational management. There appears to be no costs assigned to training function in general or to the shift to EPCR administration (one time and/or ongoing).
- Safety: investigates incidents, accidents and near-miss events to ascertain risk. This program also serves to educate responders, promote safe operations, inform policy decisions, apparatus/equipment design and purchasing decisions.
- Apparatus and Equipment: ensures consistent design and configuration to enable interagency functionality and a functional reserve fleet.
- Quality Assurance and Quality Improvement (QA/QI): ensures regular review of randomly selected patient outcomes, responder skills, safety investigations and equipment performance to inform policy, training and design criteria. This program also explores industry best practices and recommends such practice changes as become appropriate to serve the community’s needs.
- Patient Business Services: ensures a consistent methodology for patient/citizen system contact for inquiries, records retrieval and problem resolution.

- Performance Review (agency/unit/responder): ensures an impartial review, assessment and reporting of operational performance (time and expense metrics) at agency and unit levels; also incorporates a systematic review of responder performance and behavior that considers medical skills, teamwork and compliance with system policy and rules.
- Complaint Receipt and Resolution Process: ensures accurate and thorough documentation of patient/citizen input, thorough investigation of any complaint or concern or matter and timely resolution and response.

LOGISTICAL SUPPORT

This system area includes the following component functions.

- Apparatus (vehicle) Program: identifies appropriate chassis, ensures consistent and regular maintenance and repair, ensures response-ready apparatus 24/7/365 for all agencies regardless of location. This program effort must also account for a suitable reserve fleet and for fleet resources necessary to accommodate reasonably expected system demand surge.
- Equipment Program: facilitates development of a standardized equipment inventory, procures required equipment, ensures operational readiness and repair of required equipment 24 hours a day, 365 days a year for all agencies (regardless of location). This program effort must also account for equipping a suitable reserve fleet and resources necessary to accommodate reasonably expected system demand surge.
- Communications: ensures functional and clear voice and data transmission capabilities along with associated required/recommended operational practices.
- Information Technology: ensures a common and functional information technology (IT) platform and operating system(s). This includes accurate and current GIS data.
- Supplies Program: ensures a readily accessible store of medical supplies and pharmaceuticals that provide timely restock of any system unit, 24 hours a day, 365 days a year for all agencies (regardless of location). This program effort must also account for supplies and resources necessary to accommodate reasonably expected system demand surge.
- The Sanford-Millican Proposal proposes for the County to “maintain” this component but does not offer any detail regarding cost/funding. The Proposal suggests for the County to hire incumbent Sunstar personnel; it doesn’t address the matter of facilities and required functional space to operate the program. Further, the present system operates on the premise of field units traveling to a consolidated location for supplies and restock. There are undefined costs associated with travel and out of service time for the field units.

Notwithstanding the lack of information in the Sanford-Millican Proposal discussed above, for purposes of comparison of models *FITCH* assumed the functions associated with Governance and Policy, Operational Accountability, and Logistical Support can be executed successfully in the Sanford-Millican Proposal. Furthermore, *FITCH* chose to assume that these functions could be executed at the same cost as experienced in the current system.

The purpose in making these assumptions is first, to give the Sanford-Millican Proposal the benefit of the doubt, and second, to simplify the process of making comparisons between proposals. Again, the number of variables affecting the Governance, Accountability and Logistic functions is so significant that their consideration would quickly degenerate into irresolvable conflicts, and contribute nothing to distinguishing between proposals.

FITCH advocates a detailed look at **changes** in the costs of frontline responders among the various Proposals. This should be sufficient to distinguish between them to the satisfaction of the stakeholders.

MULTI-JURISDICTIONAL FIRE-BASED EMS TRANSPORT SYSTEMS

The system design proposed under Sanford-Millican is not a common model. It could best be characterized as "a single administrative unit (formed through an intergovernmental agreement) with multiple independent fire transport agencies that operate using common operational and clinical protocols to perform all emergency and non emergency transport services under a performance based agreement for the contracting entity/jurisdiction."

FITCH conducts the survey of the 200 largest cities in America that is published annually by the *Journal of Emergency Medical Services* and has done so for many years. In 2013, the communities represented in this data set range in size from New York City, NY (#1) population 8,244,910 to Hartford, CT (#200) population 124,867. None of these cities or their respective counties operate a system design such as proposed under Sanford-Millican.

MID/LONGER-TERM REGIONAL SERVICE/ENHANCEMENT OPPORTUNITIES

As efficiencies are implemented in the Pinellas EMS system, there are likely opportunities to redirect some level of funding to projects and programs that benefit the system from a more regional perspective as a longer term-system goal. Items that could be considered as the EMS stakeholders move forward might include the following:

- Community Paramedicine: Explore community paramedic to improve community outreach, public education, injury prevention, etc. with an eye to incorporating coming changes in the healthcare delivery models. This may include the use of "advanced practice paramedics as part of the clinical rank structure of response personnel who could also strengthen field clinical supervision of fire service based paramedics.
- Support for Special Response Efforts: There are several special response team efforts throughout the County that would benefit from additional support either for personnel, vehicles or equipment. These include the functions of HazMat/CBRNE response, technical rescue (high angle, structure collapse, below grade rescue), water rescue, tactical/SWAT medic, and support for a regional Mobile Command Post and other vehicles such as bus ambulances and to assist in mass casualty incidents and heavy rescue apparatus.
- Service Improvement to Remote/Hard to Serve Areas: There are several hard to serve areas that require responses to wildland fires and responses within waterway areas with little access. A review of historical incidents and risk factors may point to the need for additional brush fire response units and possibly the positioning or re-positioning of marine or water rescue response units.

ATTACHMENT A

Inventory of Apparatus by District and Station Used in Simulation HIS-1

FITCH
& ASSOCIATES

Attachment A
Inventory of Apparatus by District and Station Used in Simulation HIS-1 [1,2,3]

Fire District	Station	Engine	Truck	Squad	Rescue	PLU
Belleair Bluffs (Largo)	**43**	E43				
Clearwater	**44**	E44				
	45	E45	**T45**		R45	
	46	E46			R46	
	47	E47			R47	
	48	E48	**T48**		R48	
	49	E49			R49	
	50	E50				
	51	E51		**S51**		
Dunedin	**60**	E60	**T60**			
	61	E61				
	62	E62				
East Lake	**56**	E56				
	57			S57		
	58	E58				
Gulfport	**17**	E17				
Largo	**38**	E38		S38		
	39	E39			R39	
	40	E40				
	41	E41	**T41**	**S41**	R41	
	42		T42		R42	
Lealman	**18**	E18				
	19	E19			R19	
Madeira Beach	**25**	E25				
Oldsmar	**54**		T54		R54	
Palm Harbor	**65**	E65		S65		
	66	E66				
	67		T67			
	68	E68				
Pinellas Park	**16**	E16				
	33		T33	S33*	R33	
	34	E34			R34	
	35		T35	S35*		
	36	E36				
	37				R37	
Pinellas Suncoast	**27**	E27				
	28		T28			
Safety Harbor	**52**	E52				
	53		T53			

Attachment A
Inventory of Apparatus by District and Station Used in Simulation HIS-1 [1,2,3]

Fire District	Station	Engine	Truck	Squad	Rescue	PLU
Seminole	**29**	E29	**T29**	S29		
	30	E30				
	31	E31				
	32	E32				
South Pasadena	**20**		**T20**		R20	
St. Petersburg	**1**		**T1**	**S1**	R1	
	3	E3			R3	
	4	**E1** E4			R4	
	5	**E5**			R5	
	6	E6			R6	
	7	E7			R7	
	8	**E8**			R8	
	9	**E9**	**T9**		R9	
	10	**E10**			R10	
	11	E11	**T11**		R11	
	12	E12				
	13	E13	**T13**			
St. Pete Beach	**22**	E22				
	23		**T23**		R23	
Tarpon Springs	**69**	E69	T69			
	70	E70				
Tierra Verde (Lealman)	**21**	E21				
Treasure Island	**24**	E24				
Apparatus Totals		**51**	**19**	**8**	**25**	**0**
System Total		**103**				

[1] Apparatus (rescue capable / ALS) are entered using regular font.

[2] Apparatus (non-rescue capable / BLS) are entered using underlined bold font.

[3] Inventory of apparatus and ALS/BLS status are reported as vetted by the Fire Chiefs on of before 17 June 2013.

* S35 and S33 tally as one (1) unit. The apparatus was moved from station 35 to station 33 at the end of March.

ATTACHMENT B

Inventory of Apparatus by District and Station Used in Simulation IPS

FITCH
& ASSOCIATES

Attachment B
Inventory of Apparatus by District and Station Used in Simulation IPS [1,2]

Fire District	Station	Engine	Truck	Squad	Rescue	PLU
Belleair Bluffs (Largo)	**43**	E43				
Clearwater	**44**	E44				
	45	E45	T45			
	46	E46				
	47	E47				
	48	E48	T48			
	49	E49				
	50	E50				
	51	E51		**S51**		
Dunedin	**60**	E60	T60			
	61	E61				
	62	E62				
East Lake	**56**	E56				
	57			S57		
	58	E58				
Gulfport	**17**	E17				
Largo	**38**	E38		S38		
	39	E39				
	40	E40				
	41	E41	**T41**	S41		
	42		T42			
Lealman	**18**	E18				
	19	E19				
Madeira Beach	**25**	E25				
Oldsmar	**54**		T54			
Palm Harbor	**65**	E65		S65		
	66	E66				
	67		T67			
	68	E68				
Pinellas Park	**16**	E16				
	33		T33	S33*		
	34	E34				
	35		T35	S35*		
	36	E36				
	37					
Pinellas Suncoast	**27**	E27				
	28		T28			
Safety Harbor	**52**	E52				
	53		T53			

Attachment B
Inventory of Apparatus by District and Station Used in Simulation IPS [1,2]

Fire District	Station	Engine	Truck	Squad	Rescue	PLU
Seminole	29	E29	**T29**	S29		
	30	E30				
	31	E31				
	32	E32				
South Pasadena	20		T20			
St. Petersburg	1		T1	**S1**		
	3	E3				
	4	E1 E4				
	5	E5				
	6	E6				
	7	E7				
	8	E8				
	9	E9	T9			
	10	E10				
	11	E11	**T11**			
	12	E12				
	13	E13	**T13**			
St. Pete Beach	22	E22				
	23		T23			
Tarpon Springs	69	E69	T69			
	70	E70				
Tierra Verde (Lealman)	21	E21				
Treasure Island	24	E24				
Apparatus Totals		**51**	**19**	**8**	**0**	**0**
System Total		**78**				

[1] Apparatus (rescue capable / ALS) are entered using regular font.

[2] Apparatus (non-rescue capable / BLS) are entered using underlined bold font.

* S35 and S33 tally as one (1) unit. The apparatus was moved from station 35 to station 33 at the end of March.

ATTACHMENT C

Inventory of Apparatus by District and Station Used in Simulation SM-1

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Attachment C
Inventory of Apparatus by District and Station Used in Simulation SM-1 [1,2]

Fire District	Station	Engine	Truck	Squad	Rescue	PLU
Belleair Bluffs (Largo)	**43**	E43				R43A
Clearwater	**44**	E44				
	45	E45	**T45**		R45	
	46	E46				R46 R46A
	47	E47			R47	
	48	E48	**T48**		R48	R48A
	49	E49			R49	
	50	E50			R50	
	51	E51		**S51**		R51A
Dunedin	**60**	E60	**T60**		R60	
	61	E61			R61	
	62	E62				
East Lake	**56**	E56			R56	
	57			S57		
	58	E58				
Gulfport	**17**	E17				
Largo	**38**	E38		S38	R38	
	39	E39			R39	
	40	E40				
	41	E41	**T41**	**S41**	R41	R41A
	42		T42		R42	
Lealman	**18**	E18			R18	
	19	E19			R19	R19A
Madeira Beach	**25**	E25				
Oldsmar	**54**		T54			R54
Palm Harbor	**65**	E65		S65	R65	
	66	E66				
	67		T67			R67A
	68	E68			R68	
Pinellas Park	**16**	E16				
	33		T33	S33*	R33	
	34	E34			R34	
	35		T35	S35*		
	36	E36				
	37				R37	
Pinellas Suncoast	**26**				R26	
	27	E27				
	28		T28			

Attachment C
Inventory of Apparatus by District and Station Used in Simulation SM-1 [1,2]

Fire District	Station	Engine	Truck	Squad	Rescue	PLU
Safety Harbor	**52**	E52			R52	
	53		T53			
Seminole	**29**	E29	**T29**	S29	R29	
	30	E30			R30	R30A
	31	E31				
	32	E32				
South Pasadena	**20**		**T20**		R20	
St. Petersburg	**1**		**T1**	**S1**	R1	R1A
	3	E3			R3	R3A
	4	E1 E4			R4	R4A
	5	E5			R5	
	6	E6			R6	R6A
	7	E7			R7	
	8	E8			R8	R8A
	9	E9	**T9**		R9	
	10	E10			R10	
	11	E11	**T11**		R11	
	12	E12				
	13	E13	**T13**			R13A
St. Pete Beach	**22**	E22				
	23		**T23**		R23	
Tarpon Springs	**69**	E69	T69		R69	
	70	E70				
Tierra Verde (Lealman)	**21**	E21				
Treasure Island	**24**	E24				
Apparatus Totals		**51**	**19**	**8**	**36**	**16**
System Total		**130**				

[1] Apparatus (rescue capable / ALS) are entered using regular font.

[2] Apparatus (non-rescue capable / BLS) are entered using underlined bold font.

* S35 and S33 tally as one (1) unit. The apparatus was moved from station 35 to station 33 at the end of March.

ATTACHMENT D

Inventory of Apparatus by District and Station Used in Simulation SM-2

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Attachment D
Inventory of Apparatus by District and Station Used in Simulation SM-2 [1,2]

Fire District	Station	Engine	Truck	Squad	Rescue	PLU
Belleair Bluffs (Largo)	**43**	E43			R43	R43A
Clearwater	**44**	E44				
	45	E45	**T45**		R45 R45A	R45B
	46	E46				
	47	E47			R47 R47A	
	48	E48	**T48**		R48 R48A	
	49	E49			R49 R49A	
	50	E50				R50
	51	E51		**S51**		R51A
Dunedin	**60**	E60	**T60**		R60	R60A R60B R60C
	61	E61				
	62	E62				R62
East Lake	**56**	E56			R56	
	57			S57		
	58	E58				
Gulfport	**17**	E17			R17	R17A
Largo	**38**	E38		S38	R38 R38A	
	39	E39				R39 R39A
	40	E40				R40
	41	E41	**T41**	**S41**	R41 R41A	R41B
	42		T42		R42	R42A
Lealman	**18**	E18			R18 R18A	R18B
	19	E19				R19 R19A R19B
Madeira Beach	**25**	E25			R25	R25A
Oldsmar	**54**		T54		R54	
Palm Harbor	**65**	E65		S65	R65 R65A	
	66	E66				R66
	67		T67			R67
	68	E68				

Attachment D
Inventory of Apparatus by District and Station Used in Simulation SM-2 [1,2]

Fire District	Station	Engine	Truck	Squad	Rescue	PLU
Pinellas Park	16	E16				R16
	33		T33	S33*	R33 R33A	R33B
	34	E34			R34	R34B
	35		T35	S35*		R35 R35B
	36	E36				
	37					
Pinellas Suncoast	26					
	27	E27			R27	
	28		T28			
Safety Harbor	52	E52				R52
	53		T53		R53	R53A R53B
Seminole	29	E29	**T29**	S29	R29	R29A
	30	E30			R30	R30A R30B
	31	E31				R31
	32	E32				R32
South Pasadena	20		**T20**		R20	R20A R20B
St. Petersburg	1		**T1**	**S1**	R1 R1A	R1B R1C
	3	E3			R3 R3A	
	4	E1 E4				R4
	5	E5				R5 R5A
	6	E6				R6
	7	E7			R7 R7A	
	8	E8			R8	R8A
	9	E9	**T9**			R9
	10	E10			R10	
	11	E11	**T11**		R11	R11A
	12	E12				
	13	E13	**T13**			R13A
St. Pete Beach	22	E22				
	23		**T23**		R23	
Tarpon Springs	69	E69	T69		R69	R69A
	70	E70				R70
Tierra Verde (Lealman)	21	E21				

Attachment D
Inventory of Apparatus by District and Station Used in Simulation SM-2 [1,2]

Fire District	Station	Engine	Truck	Squad	Rescue	PLU
Treasure Island	**24**	E24			R24	
Apparatus Totals		**51**	**19**	**8**	**43**	**48**
System Total				**169**		

[1] Apparatus (rescue capable / ALS) are entered using regular font.

[2] Apparatus (non-rescue capable / BLS) are entered using underlined bold font.

* S35 and S33 tally as one (1) unit. The apparatus was moved from station 35 to station 33 at the end of March.

ATTACHMENT E

Inventory of Apparatus by District and Station Used in Simulation CARES-1

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Attachment E
Inventory of Apparatus by District and Station Used in Simulation CARES-1 [1,2]

Note - Squad 27 was activated in this model and reflected in this Attachment

Fire District	Station	Engine	Truck	Squad	Rescue	PLU
Belleair Bluffs (Largo)	**43**	E43				
Clearwater	**44**	E44				
	45	E45	**T45**		R45	
	46	E46				R46
	47	E47				R47
	48	E48	**T48**			R48
	49	E49				R49
	50	E50				
	51	E51		**S51**		
Dunedin	**60**	E60	**T60**			
	61	E61				
	62	E62				
East Lake	**56**	E56				
	57			S57		
	58	E58				
Gulfport	**17**	E17				
Largo	**38**	E38				S38
	39	E39		**S41**	R39	
	40	E40				
	41	E41	**T41**			R41
	42		T42			R42
Lealman	**18**	E18				
	19	E19				R19
Madeira Beach	**25**	E25				
Oldsmar	**54**		T54		R54	
Palm Harbor	**65**	E65				S65
	66	E66				
	67		T67			
	68	E68				
Pinellas Park	**16**	E16				
	33		T33			S33* R33
	34	E34				R34
	35		T35			S35*
	36	E36				
	37				R37	

Attachment E
Inventory of Apparatus by District and Station Used in Simulation CARES-1 [1,2]

Fire District	Station	Engine	Truck	Squad	Rescue	PLU
Pinellas Suncoast	**27**	E27		S27		
	28		T28			
Safety Harbor	**52**	E52				
	53		T53			
Seminole	**29**	E29	**T29**			S29
	30	E30				
	31	E31				
	32	E32				
South Pasadena	**20**		**T20**		R20	
St. Petersburg	**1**		**T1**	**S1**	R1	
	3	E3				R3
	4	**E1** E4				R4
	5	**E5**			R5	
	6	E6				R6
	7	E7				R7
	8	**E8**			R8	
	9	**E9**	**T9**		R9	
	10	**E10**			R10	
	11	E11	**T11**			R11
	12	E12				
	13	E13	**T13**			
St. Pete Beach	**22**	E22				
	23		**T23**		R23	
Tarpon Springs	**69**	E69				T69
	70	E70				
Tierra Verde (Lealman)	**21**	E21				
Treasure Island	**24**	E24				
Apparatus Totals		**51**	**18**	**5**	**11**	**19**
System Total		**104**				

[1] Apparatus (rescue capable / ALS) are entered using regular font.

[2] Apparatus (non-rescue capable / BLS) are entered using underlined bold font.

* S35 and S33 tally as one (1) unit. The apparatus was moved from station 35 to station 33 at the end of March.

ATTACHMENT F

Consolidated Inventory of Apparatus by Type and District

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Attachment F
Consolidated Inventory of Apparatus by Type and District

	HIS-1	IPS-1	SM-1	SM-2	CARES-1
St Petersburg					
# Rescues	10	0	10	9	5
# Rescue PLU	0	0	6	10	5
# Engines ALS	7	12	12	12	7
# Engines BLS	5	0	0	0	5
#Trucks ALS	0	2	0	0	0
# Trucks BLS	4	2	4	4	4
#Squads ALS	0	0	0	0	0
# Squads BLS	1	1	1	1	1
Total # Units	**27**	**17**	**33**	**36**	**27**
Clearwater					
# Rescues	5	0	5	8	1
# Rescue PLU	0	0	4	3	4
# Engines ALS	8	8	8	8	8
# Engines BLS	0	0	0	0	0
#Trucks ALS	0	2	0	0	0
# Trucks BLS	2	0	2	2	2
#Squads ALS	0	0	0	0	0
# Squads BLS	1	1	1	1	1
Total # Units	**16**	**11**	**20**	**22**	**16**
Largo + Belleair					
# Rescues	3	0	4	6	1
# Rescue PLU	0	0	2	6	3
# Engines ALS	5	5	5	5	5
# Engines BLS	0	0	0	0	0
#Trucks ALS	1	1	1	1	1
# Trucks BLS	1	1	1	1	1
#Squads ALS	1	2	1	1	0
# Squads BLS	1	0	1	1	1
Total # Units	**12**	**9**	**15**	**21**	**12**
Pinellas Park					
# Rescues	3	0	3	3	1
# Rescue PLU	0	0	0	5	3
# Engines ALS	3	3	3	3	3
# Engines BLS	0	0	0	0	0
#Trucks ALS	2	2	2	2	2
# Trucks BLS	0	0	0	0	0
#Squads ALS	0	1	1	1	0
# Squads BLS	1	0	0	0	0
Total # Units	**9**	**6**	**9**	**14**	**9**

Attachment F
Consolidated Inventory of Apparatus by Type and District

	HIS-1	IPS-1	SM-1	SM-2	CARES-1
Seminole					
# Rescues	0	0	2	2	0
# Rescue PLU	0	0	1	5	1
# Engines ALS	4	4	4	4	4
# Engines BLS	0	0	0	0	0
#Trucks ALS	0	0	0	0	0
# Trucks BLS	1	1	1	1	1
#Squads ALS	1	1	1	1	0
# Squads BLS	0	0	0	0	0
Total # Units	**6**	**6**	**9**	**13**	**6**
Lealman + Tierra					
# Rescues	1	0	2	2	0
# Rescue PLU	0	0	1	4	1
# Engines ALS	3	3	3	3	3
# Engines BLS	0	0	0	0	0
#Trucks ALS	0	0	0	0	0
# Trucks BLS	0	0	0	0	0
#Squads ALS	0	0	0	0	0
# Squads BLS	0	0	0	0	0
Total # Units	**4**	**3**	**6**	**9**	**4**
Palm Harbor					
# Rescues	0	0	2	2	0
# Rescue PLU	0	0	1	2	1
# Engines ALS	3	3	3	3	3
# Engines BLS	0	0	0	0	0
#Trucks ALS	1	1	1	1	1
# Trucks BLS	0	0	0	0	0
#Squads ALS	1	1	1	1	0
# Squads BLS	0	0	0	0	0
Total # Units	**5**	**5**	**8**	**9**	**5**
Dunedin					
# Rescues	0	0	2	1	0
# Rescue PLU	0	0	0	4	0
# Engines ALS	3	3	3	3	3
# Engines BLS	0	0	0	0	0
#Trucks ALS	0	1	0	0	0
# Trucks BLS	1	0	1	1	1
#Squads ALS	0	0	0	0	0
# Squads BLS	0	0	0	0	0
Total # Units	**4**	**4**	**6**	**9**	**4**

Attachment F
Consolidated Inventory of Apparatus by Type and District

	HIS-1	IPS-1	SM-1	SM-2	CARES-1
Tarpon Springs					
# Rescues	0	0	1	1	0
# Rescue PLU	0	0	0	2	1
# Engines ALS	2	2	2	2	2
# Engines BLS	0	0	0	0	0
#Trucks ALS	1	1	1	1	0
# Trucks BLS	0	0	0	0	0
#Squads ALS	0	0	0	0	0
# Squads BLS	0	0	0	0	0
Total # Units	**3**	**3**	**4**	**6**	**3**
South Pasadena					
# Rescues	1	0	1	1	1
# Rescue PLU	0	0	0	2	0
# Engines ALS	0	0	0	0	0
# Engines BLS	0	0	0	0	0
#Trucks ALS	0	1	0	0	0
# Trucks BLS	1	0	1	1	1
#Squads ALS	0	0	0	0	0
# Squads BLS	0	0	0	0	0
Total # Units	**2**	**1**	**2**	**4**	**2**
Safety Harbor					
# Rescues	0	0	1	1	0
# Rescue PLU	0	0	0	3	0
# Engines ALS	1	1	1	1	1
# Engines BLS	0	0	0	0	0
#Trucks ALS	1	1	1	1	1
# Trucks BLS	0	0	0	0	0
#Squads ALS	0	0	0	0	0
# Squads BLS	0	0	0	0	0
Total # Units	**2**	**2**	**3**	**6**	**2**
East lake					
# Rescues	0	0	1	1	0
# Rescue PLU	0	0	0	0	0
# Engines ALS	2	2	2	2	2
# Engines BLS	0	0	0	0	0
#Trucks ALS	0	0	0	0	0
# Trucks BLS	0	0	0	0	0
#Squads ALS	1	1	1	1	1
# Squads BLS	0	0	0	0	0
Total # Units	**3**	**3**	**4**	**4**	**3**

Attachment F
Consolidated Inventory of Apparatus by Type and District

	HIS-1	IPS-1	SM-1	SM-2	CARES-1
Gulfport					
# Rescues	0	0	0	1	0
# Rescue PLU	0	0	0	1	0
# Engines ALS	1	1	1	1	1
# Engines BLS	0	0	0	0	0
#Trucks ALS	0	0	0	0	0
# Trucks BLS	0	0	0	0	0
#Squads ALS	0	0	0	0	0
# Squads BLS	0	0	0	0	0
Total # Units	**1**	**1**	**1**	**3**	**1**
St. Pete Beach					
# Rescues	1	0	1	1	1
# Rescue PLU	0	0	0	0	0
# Engines ALS	1	1	1	1	1
# Engines BLS	0	0	0	0	0
#Trucks ALS	0	1	0	0	0
# Trucks BLS	1	0	1	1	1
#Squads ALS	0	0	0	0	0
# Squads BLS	0	0	0	0	0
Total # Units	**3**	**2**	**3**	**3**	**3**
Pinellas Suncoast					
# Rescues	0	0	1	1	0
# Rescue PLU	0	0	0	0	0
# Engines ALS	1	1	1	1	1
# Engines BLS	0	0	0	0	0
#Trucks ALS	1	1	1	1	1
# Trucks BLS	0	0	0	0	0
#Squads ALS	0	0	0	0	1
# Squads BLS	0	0	0	0	0
Total # Units	**2**	**2**	**3**	**3**	**3**
Oldsmar					
# Rescues	1	0	0	1	1
# Rescue PLU	0	0	1	0	0
# Engines ALS	0	0	0	0	0
# Engines BLS	0	0	0	0	0
#Trucks ALS	1	1	1	1	1
# Trucks BLS	0	0	0	0	0
#Squads ALS	0	0	0	0	0
# Squads BLS	0	0	0	0	0
Total # Units	**2**	**1**	**2**	**2**	**2**

Attachment F
Consolidated Inventory of Apparatus by Type and District

	HIS-1	IPS-1	SM-1	SM-2	CARES-1
Treasure Island					
# Rescues	0	0	0	1	0
# Rescue PLU	0	0	0	0	0
# Engines ALS	1	1	1	1	1
# Engines BLS	0	0	0	0	0
#Trucks ALS	0	0	0	0	0
# Trucks BLS	0	0	0	0	0
#Squads ALS	0	0	0	0	0
# Squads BLS	0	0	0	0	0
Total # Units	**1**	**1**	**1**	**2**	**1**
Madiera Beach					
# Rescues	0	0	0	1	0
# Rescue PLU	0	0	0	1	0
# Engines ALS	1	1	1	1	1
# Engines BLS	0	0	0	0	0
#Trucks ALS	0	0	0	0	0
# Trucks BLS	0	0	0	0	0
#Squads ALS	0	0	0	0	0
# Squads BLS	0	0	0	0	0
Total # Units	**1**	**1**	**1**	**3**	**1**
Apparatus Totals					
# Rescues	25	0	36	43	11
# Rescue PLU	0	0	16	48	19
# Engines ALS	46	51	51	51	46
# Engines BLS	5	0	0	0	5
#Trucks ALS	8	15	8	8	7
# Trucks BLS	11	4	11	11	11
#Squads ALS	4	6	5	5	2
# Squads BLS	4	2	3	3	3
Total # Units	**103**	**78**	**130**	**169**	**104**

ATTACHMENT G

Representative List of Documents Reviewed by Consultants

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Attachment G
Representative List of Documents Reviewed by Consultants

- Ambulance Service Agreement and Appendices
- Ambulance Service Agreement Amendments
- ALS First Responder Agreements
- ALS First Responder Master Agreement
- Pinellas County EMS Coordinators List
- Pinellas county Fire Chiefs List
- Pinellas County EMS Study Final IPS Report
- Sanford-Millican Proposal
- Staff Analysis of the Sanford-Millican Fire Transport Proposal 9/6/11
- Collective Bargaining Agreements for Districts as made available
- Resolutions, Ordinances and State Legislation pertinent to the project
- Pinellas County EMS and St. Petersburg Joint Collaborative and Appendics
- ALS First Responder Funding Revenue and Budget Summary for FY10-11 for all Districts
- EMS Historical Financial Data (10 year data from 1998 to 2011)
- Summary Financial Reports on EMS Actual Revenue & Expenditures FY08-09, FY09-10, FY10-11
- Ambulance Billing Revenue & Cost of Collections
- Pinellas County 2011 ALS First Responder Unit Summary
- Sunstar Performance Reports
- IAFC Sleep Deprivation Report

ATTACHMENT H

Sunstar Capital Equipment

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Attachment H
Sunstar Capital Equipment

Vehicle Replacement Plan
2011 to 2015

Existing	Maintain or Replace
Ambulances	
Nine (9) 2004 Ford/AEV Type III Ambulances	Remount to maintain Nine (9) 2012 Chevrolet C-4500/AEV Type III Ambulances (Remount)
Forty Three (43) 2009/2010/2011 Chevrolet C-4500/AEV Type III Ambulances	Maintain Forty Three (43) 2009/2010/2011 Chevrolet C-4500/AEV Type III Ambulances. Four (4) of these remounts will be completed in FY11-12,
Ten (10) 2009 Type II Van Ambulances. Units will primarily be utilized for "High Performance Non Emergency" and Long Distance Transfers. They may be used for 911 Transports on a secondary basis.	Maintain Six (6) 2009 Type II Ford Van Ambulances. Demobilize Four (4) 2009 Type II Ford Van Ambulances at Contractor's discretion. Note: Authority did not compensate Contractor for these units and the Fleet Size Standard was not adjusted.
One (1) 2008 Ford/AEV Type III Ambulance	Maintain One (1) 2008 Ford/AEV Type III Ambulance
Eleven (11) 2006 Ford/AEV Type III Ambulances	Maintain Seven (7) 2006 Ford/AEV Type III Ambulances. Demobilize Four (4) 2006 Ford Type III Ambulances at Contractor's discretion. Note: Engines were replaced in 2008 making longer Safe Useful Life possible.
Critical Care Unit	
One (1) 2004 Sterling/AEV Type III Ambulance Note: Backup Critical Care is standard Ambulance	Not Replaced
Supervisor Units	
Two (2) 2009 Ford Expedition Supervisor Units Two (2) 2010 Ford Expedition Supervisor Units	Not Replaced
Mental Health Transport Units	
One (1) 2011 Ford Transit Van for MHT	Not Replaced
Medical Supply Unit	
One (1) 2010 Ford Van - Medical Supply Unit	Not Replaced
Tactical EMS Unit	
One (1) 2004 Ford Expedition - Tactical EMS Unit	Not Replaced
Fleet Maintenance Unit	
One (1) 2004 Ford Pickup Truck	Replacement not Required

ATTACHMENT I

Cross Reference RFP Scope to Report Contents

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Attachment I
Cross Reference RFP Scope to Report Contents

Cross Reference Scope of Work with Table of Contents

In many instances, the RFP makes multiple references at multiple clauses to a single task. The tables below capture these multiple references for sake of completeness. Each reference to a task will lead to the same line item in the table of contents. For purposes of referrals between the scope of work and the table of contents, the table of contents of this report is reproduced in this section using a decimal list format.

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Cross Reference RFP Scope to Report Contents

Attachment I
Cross Reference RFP Scope to Report Contents

14.0 Crew Costs of Proposals

- 14.1 Approach to Costing Comparisons
- 14.2 Developing Crew Costs

15.0 Reserve Capacity

- 15.1 IPS Proposal
- 15.2 Sanford-Millican Proposal

16.0 Implementation Plans / Organization Charts

- 16.1 IPS Proposal Implementation
- 16.2 Sanford-Millican Implementation
- 16.3 CARES Plan Implementation

17.0 Sunstar and Pinellas EMS Excellence

18.0 ISO Ratings

- 18.1 Fire Insurance Ratings
- 18.2 Staffing and Response
- 18.3 Classification and Point Values
- 18.4 Conclusions

19.0 Governance, Accountability and Logistics

- 19.1 Governance and Policy
- 19.2 Operational Accountability
- 19.3 Logistical Support
- 19.4 Multi-Jurisdictional Fire Based EMS Transport Systems

20.0 Mid / Longer Term Regional Service / Enhancement Opportunities

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RFP References

The following tables excerpt the RFP paragraph by paragraph, identify the tasks required, and references the Table of Contents through the decimal list provided above.

Table 1. Section C 1

Section C ¶1 Scope of WorkPrior to conducting a study, the consultant will review documentation provided by the County as it pertains to the current operational performance and the cost of the existing EMS system, the Sanford-Millican Plan, and the IPS Study. All support materials will be provided on a Resource CD-ROM. Consultant is to utilize Fiscal Year 2010- 2011 financial and operational data.		
	Task	**TOC Entry**
01	Support Materials Received List?	Atmt "G"
Comments:		

Table 2. Section C ¶ 2

Section C ¶ 21- The Contractor will review the current fire and EMS resources in Pinellas County and Resolutions pertaining to EMS system FY2010-2011 dispatch and geographic information system (GIS) data will be provided.		
	Task	**TOC Entry**
01	Inventory historic apparatus 2010-2011 by district.	Atmt "A"
Comments:		

Table 3. Section C ¶ 3

Section C ¶ 3Following the current system performance analysis, the Contractor will then provide an analysis based on the ALS Engine model recommendations from the IPS Study, as provided, and determine the optimal deployment model(s}. This analysis will also consider and document the impact that medical first responder deployment has on countywide fire protection and the impact countywide fire protection may have on medical first response			
	Task		**TOC Entry**
01	Tabulate historic performance from CAD Report MFR response by district. Report Fire response by district	HIS-1	6.0
02	Simulate IPS as proposed with ALS apparatus in original locations Report MFR response by district. Report Fire response by district	IPS	7.0
03	Simulate IPS with ALS apparatus moved to optimum locations Report MFR response by district. Report Fire response by district	IPS-1	7.0
Comments:			

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Table 4. Section C ¶ 4

Section C ¶ 4The contractor will work with multiple stakeholders by facilitating a process to refine a deployment plan for fire department ALS First Responder units to meet: (a) a 7:30 response interval target with at least 90% reliability for each Fire/EMS District (as applicable), and (b) a response interval target that is equal to the current response time performance for each Fire/EMS District. The plan will need to factor in any limitations or restrictions on fire apparatus placement (e.g., a second fire vehicle is needed for ALS First Responder at a station that only has room for one vehicle; ladder truck that might be used at another station for ALS First Responder should not be moved away from stations that are closest to the high rise structures, etc.) and any other factors that may impact deployment and ALS First Responder unit placement.		
	Task	**TOC Entry**
01	Simulate IPS with ALS apparatus moved to optimum locations IPS-1 Report MFR response by district. Report Fire response by district	7.0
02	Compare IPS-1 with HIS-1	7.0
03	Simulate enough multi-alarm fires in IPS-1 to provide statistics on response times	See below
Comments: Multi-alarm fires are rare in Pinellas. Those that appeared in the historic record are included in the simulation of IPS-1 and had no discernable effect on compliance.		

Table 5. Section C ¶ 5

Section C ¶ 52 – The Contractor will analyze the Sanford/Miilican Plan, as provided, to fully develop an organization chart, human resources plan, deployment plan capable of meeting response time and workload standards, a capital plan and an operational budget. Such components will be assessed to maintain all currently provided services and functions at the respective current service delivery levels to ensure an "apples to apples" comparison of the existing EMS System to the Sanford/Millican proposal.		
	Task	**TOC Entry**
01	Simulate SM-1 SM-1 Report MFR response by district. Report Fire response by district	8.1
02	Compare SM-1 with HIS-1	8.1
03	Develop org chart for SM-1	15.2
04	Develop human resources plan for SM-1	15.2
05	Fix SM-1 to meet MFR & Fire response times in HIS-1 and to comply with UhU	8.2
06	Simulate SM-2 SM-2	8.2
07	Compare SM-2 with HIS-1 based on MFR & Fire response times	8.2
Comments:		

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Table 6. Section C ¶ 6

Section C ¶ 6Such components shall include, but is not limited to, governance structure, administration/management, field supervision and coordination, all support services such as dispatch, patient business services, training/education, safety risk, information technology management and support, materials management, scheduling, fleet management, etc. All services including ALS First Responder Services and ALS Emergency and Non-Emergency Transport, Critical Care Transport, Mental Health Transport, All Children's Hospital Transport Team, and Tactical EMS Services.		
	Task	**TOC Entry**
01	Compare SM-2 with HIS-1 based on:	16.0 & 19.0
02	Governance structure	16.0 & 19.0
03	Administration & management	16.0 & 19.0
04	Field supervision and coordination	16.0 & 19.0
05	Dispatch	16.0 & 19.0
06	Patient business services	16.0 & 19.0
07	Training & education	16.0 & 19.0
08	Safety-risk	16.0 & 19.0
09	IT management & support	16.0 & 19.0
10	Materials management	16.0 & 19.0
11	Scheduling	16.0 & 19.0
12	Fleet management	16.0 & 19.0
13	Etc.	
14	ALS First Responder Services	8.2
15	ALS emergency transport	8.2
16	Non-emergency transport	8.2
17	Critical care transport	16.0
18	Mental Health transport	16.0
19	All Children's Hospital Transport Team	16.0
20	Tactical EMS Services	16.0
Comments:		

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Table 7. Section D ¶ 1

Section D ¶ 1DELIVERABLESNote: For all deiiverables listed below, Contractor shall provide an executive summary for each section of the Contractor's draft and final reports. Contractor shall fully vet both altematives from an operational perspective that would allow for the full costing of each alternative to be compared with the existing EMS System's operational performance and cost.		
	Task	**TOC Entry**
01	Executive summary for each section of draft and final report	19.0 & 3.2
02	Calculate full cost of HIS-1	19.0 & 3.2
03	Calculate full cost of IPS-1	19.0 & 3.2
04	Calculate full cost of SM-2	19.0 & 3.2
05	Compare full cost of IPS-1 with HIS-1	19.0 & 3.2
06	Compare full cost of SM-2 with HIS-1	19.0 & 3.2
07	Compare performance of IPS-1 with HIS-1	7.0
08	Compare performance of SM-2 with HIS-1	8.2
Comments:		

Table 8. Section D1 ¶ 1

Section D1 ¶ 1 IPS Study Reviewl. Utilize commercially available Fire/EMS Deployment Analysis software to conduct the deployment analyses.		
	Task	**TOC Entry**
01	Use commercially available Fire/EMS Deployment Analysis software	1.1
Comments:		

Table 9. Section D1 ¶ 2

Section D1 ¶ 2 IPS Study Review2. Evaluate and document the current level of Pineilas County's EMS readiness and performance including the number and types of units assigned to each station and prepare percentile response time reports for FY 10-11, within each of the Fire/EMS Districts.		
	Task	**TOC Entry**
01	Inventory historic apparatus 2010-2011 by district.	Atmnt “E”
02	Tabulate historic performance from CAD HIS-1 Report MFR response by district. Report Fire response by district. Use %-tiles. Also report min:sec @ 90%	6.0
Comments:		

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Table 10. Section D1 ¶ 3

Section D1 ¶ 3 IPS Study Review3. Evaluate and document the current level of Pinellas County's fire protection readiness and performance including the number and types of units assigned to each station. include a countyvnde analysis of a four minute response time for a first-due engine or truck company to a structure fire and an eight minute response time for a structure fire initial alarm assignment (15 or more responders on multiple pieces of apparatus). Evaluate and document the potential positive or negative impact on each Fire/EMS District's insurance Services Office (ISO) rating.		
	Task	**TOC Entry**
01	Inventory apparatus by district. IPS-1	Atmnt "B"
02	Simulate enough multi-alarm fires in IPS-2 to provide statistics on response times. Report: Response time for first due apparatus (target 4:00 @ 50%) Response time for initial alarm assignment (target 8:00 @ 50%)	See below
03	Evaluate impact of ISO ratings by district	16.4
Comments: Multi-alarm fires are rare in Pinellas. Those that appeared in the historic record are included in the simulation of IPS-1 and had no discernable effect on compliance.		

Table 11. Section D1 ¶ 4

Section D1 ¶4 IPS Study Review4. Include in the study a recommendation on implementing a Medical Priority Dispatch System (MPDS), based upon national standards, to reduce the number and types of units dispatched to medical emergencies. Show deployment model(s) of a fully implemented MPDS approach as compared to the current system.		
	Task	**TOC Entry**
01	Recommend use of MPDS in IPS-1	4.2 & 12.0
02	Implement MPDS in IPS-1. Fix inventory of apparatus. Create IPS-2	12.0
03	Create HIS-2 (w/ MPDS) for following comparison HIS-2	12.0
04	Compare IPS-2 (w/MPDS) to HIS-2 (w/ MPDS)	12.0
Comments: IPS-1 worked. Inventory of apparatus did not need fixing.		

Table 12. Section D1 ¶ 5

Section D1 ¶5 IPS Study Review5. Review to further refine the proposed IPS ALS Engine deployment plan, as needed, including the number and types of units assigned to each station and the percentile response times protected within each of the Fire/EMS Districts. Recommend alternative deployment options, if indicated, to achieve optimal efficiency to meet: (a) a minimum seven minutes and 30 seconds response time, within each Fire/EMS District, to 90% of emergency calls; and (b) a response interval target that is equal to the current response time performance for each Fire/EMS District.		
	Task	**TOC Entry**
01	Simulate IPS with ALS apparatus moved to optimum locations IPS-1 Report MFR response by district. Report Fire response by district Use %-tiles.	7.0
02	Fix IPS-2 with additional apparatus to get to: 7:30 @90% in all districts. Response time = HIS-1 in all districts. IPS-2	7.0
Comments:		

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Table 13. Section D1 ¶ 6

Section D1 ¶6 IPS Study Review6. Evaluate and document the level of Pinellas County's fire protection readiness and performance following the implementation of the ALS Engine deployment model (only for districts and areas surrounding those districts with a proposed change in ALS First Responder deployment). include a projected countywide analysis of a four minute response time for a first~due engine or truck company to a structure fire and an eight minute response time based on a structure fire initial alarm assignment (l5 or more responders on multiple pieces of apparatus).		
	Task	**TOC Entry**
01	Simulate multi-alarm fires in IPS-1	see below
02	Simulate enough events to provide statistics on response times	see below
03	Target 4:00 @ 50% first-due apparatus	see below
04	Target 8:00 @ 50% structure fire initial alarm assignment (15 or more responders on multiple pieces of apparatus)	see below
Comments: Multi-alarm fires are rare in Pinellas. Those that appeared in the historic record are included in the simulation of IPS-1 and had no discernable effect on compliance.		

Table 14. Section D1 ¶ 7

Section D 1¶7 IPS Study Review7. Contractor will convert the resultant deployment models into a detailed operational plan with recommended timelines and implementation schedules. Provide a comparison between the existing system and the proposed, optimized ALS Engine deployment model(s)		
	Task	**TOC Entry**
01	Timeline and implementation schedule for IPS-1	16.1
02	Compare IPS-1 to HIS-1	7.0
Comments:		

Table 15. Section D1 ¶ 8

Section D1 ¶8 IPS Study Review8. Provide presentation quality color coded map images capable of displaying anticipated performance (thematic maps) from countywide,		
	Task	**TOC Entry**
01	Provide hi res digital map images	see below
Comments: Jpegs transferred to County		

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Table 16. Section D2 ¶ 1

Section D2 ¶1 Sanford-Millican Plan Review1. Evaluate and document the current level of staffing and cost of all services and functions, currently provided by the Ambulance Contractor through the Ambulance Services Agreement. Evaluate and document the level of services and functions necessary to operate the Sanford/Millican Plan which is a multi-jurisdictional consolidated fire based EMS model including the integration of First Responder and Ambulance Services		
	Task	**TOC Entry**
01	Evaluate level of staffing at Sunstar	17.0
02	Evaluate cost of all services and functions	17.0
03	For SM-2, evaluate level of services and functions needed to function	16.0 & 17.0
Comments:		

Table 17. Section D2 ¶ 2

Section D2 ¶2 Sanford-Millican Plan Review2. Fully develop an organization chart showing how multi~jurisdictional governance of fire based EMS Services would work. include the integration of current fire department organization charts to include the additional function of patient transportation using a fire based EMS model.		
	Task	**TOC Entry**
01	Develop an org chart for SM-2 to include current fire department org charts showing additional function of patient transportation	16.2
Comments:		

Table 18. Section D2 ¶ 3

Section D2 ¶3 Sanford-Millican Plan Review3. Utilize commercially available Fire/EMS Deployment Analysis software to conduct the deployment analyses.		
	Task	**TOC Entry**
01	Utilize Optima Predict™ to conduct simulations	1.1 see below
Comments: Optima software installed. Input & output files transferred to County.		

Table 19. Section D2 ¶ 4

Section D2 ¶4 Sanford-Millican Plan Review4. Include in the study a recommendation on implementing a Medical Priority Dispatch System (MPDS), based upon national standards, to reduce the number and types of units dispatched to medical emergencies. Show deployment model(s) of a fully implemented MPDS approach as compared to the current system.		
	Task	**TOC Entry**
01	Recommend implementation of MPDS	4.2.2 & 12.0
02	Compare SM-2 to HIS-1	8.2
Comments:		

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Table 20. Section D2 ¶ 5

Section D2 ¶5 Sanford-Millican Plan Review5. Review to further refine the proposed Sanford/Millican Plan, including the number and types of units assigned to each station including ALS Engines, Rescue Units (24/7 transport units) and Peak Rescue Units. Review the percentile response times (both First Response and Transport) projected within each of the Fire/EMS Districts. Recommend alternative deployment options, if indicated, to achieve optimal efficiency with (a) a minimum seven minutes and 30 seconds (7:30) response time, within each Fire/EMS District, to 90% of emergency calls for First Response, (b) meeting the current response time performance within each Fire/EMS District. Further, for transport units meet the following response time standards at a minimum: ten minutes (10:00) to 90% of emergency calls; twenty minutes (20:00) to 90% of downgraded emergency calls and sixty minutes (60:00) to 90% of interfacillty and non-emergency transports.		
	Task	**TOC Entry**
01	Fix SM-1 to create SM-2	8.2
02	Run simulation of SM-2, report:	8.2
03	Performance of MFR response in min:sec @90% compared to target by district	8.2
04	Performance of MFR response in min:sec @ 90% compared to HIS-1 by district	8.2
05	Performance of emergency transport (10:00 @90%) by district	see below
06	Performance of downgraded emergency transports (20:00 @ 90%) by district	see below
07	Performance of inter-facility transports (60:00 @ 90%) by district	see below
Comments Re 05, 06, & 07: Compliance of transport activities with targets is reported countywide for SM-2. The interaction of transport activities with MFR functions is reflected in the response times by district reported for SM-2.		

Table 21. Section D2 ¶ 6

Section D2 ¶6 Sanford-Millican Plan Review 6. Evaluate and document the anticipated workload on ALS Engines, Rescue Units (24/7 transport units) and Peak Rescue Units to ensure personnel workloads are safe and effective.		
	Task	**TOC Entry**
01	Fix 0.6 UhU in SM-1. Create SM-2	8.1
02	Run simulation of SM-2.	8.2
03	Report UhU for SM-2	8.2
04	Performance of MFR response in min:sec @90% compared to target by district	8.2
05	Performance of MFR response in min:sec @ 90% compared to HIS-1 by district	8.2
06	Performance of emergency transport (10:00 @90%) by district	see below
07	Performance of downgraded emergency transports (20:00 @ 90%) by district	see below
08	Performance of inter-facility transports (60:00 @ 90%) by district	see below
Comments Re 06, 07, & 08: Compliance of transport activities with targets is reported countywide for SM-2. The interaction of transport activities with MFR functions is reflected in the response times by district reported for SM-2.		

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Table 22. Section D2 ¶ 7

Section D2 ¶7 Sanford-Millican Plan Review 7. Ensure the re-use of existing Rescue Units as transport units is evaluated to ensure appropriate level of service and workload for the replacement ALS First Responder Unit and the workload and performance of the Rescue Units for all three missions (Fire, ALS First Response and Transport) is evaluated.		
	Task	**TOC Entry**
01	Reuse of vehicles	3.2
Comments:		

Table 23. Section D2 ¶ 8

Section D2 ¶8 Sanford-Millican Plan Review 8. Evaluate and document the level of Pinellas County's ALS First Response, Fire Protection and Transport readiness and performance following the implementation of the deployment model. Evaluate and document the potential positive or negative impact on each Fire/EMS District's insurance Services Office (ISO) rating.		
	Task	**TOC Entry**
01	Performance for MFR response (by district) SM-2	8.2
02	Performance for Fire response (by district) SM-2	8.2
03	Performance for transport response (by district) SM-2	see below
04	Present IOS ratings by district	18.0
05	Comment on changes to ISO ratings	18.0
Comments Re 03: For IPS & CARES, transport by Sunstar is unchanged from current. For SM-1 & SM-2, transport response is included in the Fire Emergency Medical response times.		

Table 24. Section D2 ¶ 9

Section D2 ¶9 Sanford-Millican Plan Review 9. Contractor will convert the resultant deployment models into a detailed operational and human resource plan.		
	Task	**TOC Entry**
01	Create operational plan for SM-2	16.2
02	Create human resources plan for SM-2	16.2
Comments:		

Table 25. Section D2 ¶ 10

Section D2 ¶10 Sanford-Millican Plan Review 10. Provide presentation quality color coded map images capable of displaying anticipated performance (thematic maps) from countywide, district level and response zone views. Provide all input and resultant data files from the commercial analysis software for the County's future use.		
	Task	**TOC Entry**
01	Provide hi res digital map images	see below
0s	Provide all input data files for Optima analyses	see below
03	Provide all output data files from Optima analyses	see below
Comments: Jpegs, input files, and output files transferred to County.		

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Table 26. Section D2 ¶ 11

Section D2 ¶11 Sanford-Millican Plan Review11. Evaluate and document existing capital equipment assets and develop a complete capital equipment plan to include frontline Rescue Units to meet a 130% peak deployment standard for fleet size, all necessary EKG equipment, hydraulic stretchers, mobile data and radio communications equipment, and any other capital equipment needed to operate existing and new Rescue Units for transport duty. Utilize a five (5) year frontiine use and five (5) year reserve use "safe useful life" or specify an alternate plan. Capital plan needs to include specialty transport, supervisory and support vehicles. Capital plan needs to include all necessary computer networking, hardware, and software to provide all services specified		
	Task	**TOC Entry**
01	Inventory existing capital equipment	Atmnt "H"
02	Develop a complete capital equipment plan (5 yr frontline or reserve use plans)	see below
03	130% peak deployment standard for fleet size	Atmnt "H"
04	EKG equipment	Atmnt "H"
05	Hydraulic stretchers	Atmnt "H"
06	Mobile data terminals	Atmnt "H"
07	Radio communications equipment	Atmnt "H"
08	Other equipment to operate existing and new Rescue Units for transport duty	Atmnt "H"
09	Include specialty transport, supervisory, and support vehicles	Atmnt "H"
10	Computer networking hardware	Atmnt "H"
11	Computer networking software	Atmnt "H"
Comments: The inventory of capital equipment is exactly the same for HIS-1, IPS-1, CARES-1, and consolidated SM-1 or SM-2. The numerous possible variants to fragmentation preclude detailed inventories.		

Table 27. Section D2 ¶ 12

Section D2 ¶12 Sanford-Millican Plan Review12. Prepare an operational budget to include fuel, fleet repair and maintenance, uniforms, supplies and equipment and all other operational costs of operating a multi-jurisdictional fire based EMS system. Such components will be assessed to maintain all currently provided services and functions at the respective current service delivery levels.		
	Task	**TOC Entry**
01	Prepare operational budget	3.2
02	Fuel	3.2
03	Fleet repair and maintenance	3.2
04	Uniforms	3.2
05	Supplies and equipment	3.2
06	Other operational costs	3.2
Comments:		

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Table 28. Section D2 ¶ 13

Section D2 ¶13 Sanford-Millican Plan Review13. Other costs shall be considered and include, but not be limited to, accounting, human resources, legal support, insurance, indemnification, and any other indirect costs. The existing resources within the fire departments will be considered when integrating the transport function.		
	Task	**TOC Entry**
01	Prepare operational budget (continued)	3.2
02	Accounting	3.2
03	Human resources	3.2
04	Legal support	3.2
05	Insurance	3.2
06	Indemnification	3.2
07	Other indirect costs	3.2
Comments:		

Table 29. Section D2 ¶ 14

Section D2 ¶14 Sanford-Millican Plan Review14. Evaluate and document the implications of the governance structure on Ambulance billing, patient business services, Medicare compliance, and HIPAA compliance based upon a single licensed provider and multiple		
	Task	**TOC Entry**
01	Evaluate implications of single licensed provider and multiple providers on:	19.0
02	Governance structure on ambulance billing	19.0
03	Patient business services	19.0
04	Medicare compliance	16.0 & 19.0
05	HIPAA compliance	16.0 & 19.0
Comments:		

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Table 30. Section D2 ¶ 15

Section D2 ¶15 Sanford-Millican Plan Review15. Ensure all plans and analysis include the following components governance structure, adrninistration/management, field supervision and coordination, all support services such as dispatch, patient business services, training/education, safety/risk, information technology management and support, materials management, scheduling, fleet management, etc. and compare to other multi-jurisdictional fire based EMS transport systems.		
	Task	**TOC Entry**
01	Analyse the following components	16.0 & 19.0
02	Governance structure	16.0 & 19.0
03	Administration/management	16.0 & 19.0
04	Field supervision and coordination	16.0 & 19.0
05	Dispatch	16.0 & 19.0
06	Patient business services	16.0 & 19.0
07	Training/education	16.0 & 19.0
08	Safety-risk	16.0 & 19.0
09	IT management and support	16.0 & 19.0
10	Materials management	16.0 & 19.0
11	Scheduling	16.0 & 19.0
12	Fleet management	16.0 & 19.0
13	Etc.	16.0 & 19.0
14	Compare all the above to other multi-jurisdictional fire based EMS transport systems	19.4
Comments:		

Table 31. Section D2 ¶ 16

Section D2 ¶16 Sanford-Millican Plan Review16. Ensure all plans and analysis account for all services to include ALS First Responder Services and ALS Emergency and Non~Emergency Transport, Critical Care Transport, Mental Health Transport, All Children's Hospital Transport Team, and Tactical EMS Services		
	Task	**TOC Entry**
01	All plans and analyses to account for all services to include:	16.0
02	ALS First Responder Services	16.0
03	ALS emergency and non-emergency transport	16.0
04	Critical care transport	16.0
05	Mental health transport	16.0
06	All Children’s Hospital Transport Team	16.0
07	Tactical EMS Service	16.0
Comments:		

Table 32. Section D2 ¶ 17

Section D2 ¶17 Sanford-Millican Plan Review 17. For each category of transport of specialty services provided (9-1-1/Emergency, Non-Emergency, Interfacility, Critical Care, Mental Health, Critical Care, All Children's Transport Team and Tactical EMS Service), evaluate the individual revenue stream and individual program cost.		
	Task	**TOC Entry**
01	For each category of specialty transport services evaluate individual revenue stream and individual program cost	Not applicable
02	911/Emergency Transport	Not applicable
03	Non-Emergency Transport	Not applicable
04	Inter-facility Transport	Not applicable
05	Critical Care Transport	Not applicable
06	All Children's Transport Team	Not applicable
07	Tactical EMS Service	Not applicable
Comments: Each category of revenue would be identical since all are to be performed under all models and would be collected by the county or by the single intergovernmental agency. The system's revenues would continue to be a combination of millage and transport fees.		

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Cross Reference Scope of Work with Table of Contents.

For purposes of reference, page 17, 18, & 19 from the RFP are reproduced below in their entirety.

SECTION E – SCOPE OF WORK

C. SCOPE OF WORK:

Prior to conducting a study, the consultant will review documentation provided by the County as it pertains to the current operational performance and the cost of the existing EMS system, the Sanford/Millican Plan, and the IPS Study. All support materials will be provided on a Resource CD-ROM. Consultant is to utilize Fiscal Year 2010-2011 financial and operational data.

1 - The Contractor will review the current fire and EMS resources in Pinellas County and Resolutions pertaining to EMS system performance and provide the County with a detailed EMS and fire deployment and performance analysis. FY 10-11dispatch and geographic information system (GIS) data will be provided.

Following the current system performance analysis, the Contractor will then provide an analysis based on the ALS Engine model recommendations from the IPS Study, as provided, and determine the optimal deployment model(s). This analysis will also consider and document the impact that medical first responder deployment has on countywide fire protection and the impact countywide fire protection may have on medical first response.

The contractor will work with multiple stakeholders by facilitating a process to refine a deployment plan for fire department ALS First Responder units to meet: (a) a 7:30 response interval target with at least 90% reliability for each Fire/EMS District (as applicable), and (b) a response interval target that is equal to the current response time performance for each Fire/EMS District. The plan will need to factor in any limitations or restrictions on fire apparatus placement (e.g., a second fire vehicle is needed for ALS First Responder at a station that only has room for one vehicle; ladder truck that might be used at another station for ALS First Responder should not be moved away from stations that are closest to the high rise structures, etc.) and any other factors that may impact deployment and ALS First Responder unit placement.

2 - The Contractor will analyze the Sanford/Millican Plan, as provided, to fully develop an organization chart, human resources plan, deployment plan capable of meeting response time and workload standards, a capital plan and an operational budget. Such components will be assessed to maintain all currently provided services and functions at the respective current service delivery levels to ensure an "apples to apples" comparison of the existing EMS System to the Sanford/Millican proposal.

Such components shall include, but is not limited to, governance structure, administration/management, field supervision and coordination, all support services such as dispatch, patient business services, training/education, safety/risk, information technology management and support, materials management, scheduling, fleet management, etc. All services including ALS First Responder Services and ALS Emergency and Non-Emergency Transport, Critical Care Transport, Mental Health Transport, All Children's Hospital Transport Team, and Tactical EMS Services,

D. DELIVERABLES

Note: For all deliverables listed below, Contractor shall provide an executive summary for each section of the Contractor's draft and final reports. Contractor shall fully vet both alternatives from an operational perspective that would allow for the full costing of each alternative to be compared with the existing EMS System's operational performance and cost.

1 - IPS Study Review

1. Utilize commercially available Fire/EMS Deployment Analysis software to conduct the deployment analyses.
2. Evaluate and document the current level of Pinellas County's EMS readiness and performance including the number and types of units assigned to each station and prepare percentile response time reports for FY 10-11, within each of the Fire/EMS Districts.
3. Evaluate and document the current level of Pinellas County's fire protection readiness and performance including the number and types of units assigned to each station. Include a countywide analysis of a four minute response time for a first-due engine or truck company to a structure fire and an eight minute response time for a structure fire initial alarm assignment (15 or more responders on multiple pieces of apparatus). Evaluate and document the potential positive or negative impact on each Fire/EMS District's Insurance Services Office (ISO) rating.

4. Include in the study a recommendation on implementing a Medical Priority Dispatch System (MPDS), based upon national standards, to reduce the number and types of units dispatched to medical emergencies. Show deployment model(s) of a fully implemented MPDS approach as compared to the current system.

5. Review to further refine the proposed IPS ALS Engine deployment plan, as needed, including the number and types of units assigned to each station and the percentile response times projected within each of the Fire/EMS Districts. Recommend alternative deployment options, if indicated, to achieve optimal efficiency to meet: (a) a minimum seven minutes and 30 seconds response time, within each Fire/EMS District, to 90% of emergency calls; and (b) a response interval target that is equal to the current response time performance for each Fire/EMS District.

6. Evaluate and document the level of Pinellas County's fire protection readiness and performance following the implementation of the ALS Engine deployment model (only for districts and areas surrounding those districts with a proposed change in ALS First Responder deployment). Include a projected countywide analysis of a four minute response time for a first-due engine or truck company to a structure fire and an eight minute response time based on a structure fire initial alarm assignment (15 or more responders on multiple pieces of apparatus).

7. Contractor will convert the resultant deployment models into a detailed operational plan with recommended timelines and implementation schedules. Provide a comparison between the existing system and the proposed, optimized ALS Engine deployment model(s).

8. Provide presentation quality color coded map images capable of displaying anticipated performance (thematic maps) from countywide, district level and response zone views. Provide all input and resultant data files from the commercial analysis software for the County's future use.

2 – Sanford / Millican Plan Review

1. Evaluate and document the current level of staffing and cost of all services and functions, currently provided by the Ambulance Contractor through the Ambulance Services Agreement. Evaluate and document the level of services and functions necessary to operate the Sanford/Millican Plan which is a multi-jurisdictional consolidated fire based EMS model including the integration of First Responder and Ambulance Services.

2. Fully develop an organization chart showing how multi-jurisdictional governance of fire based EMS Services would work. Include the integration of current fire department organization charts to include the additional function of patient transportation using a fire based EMS model.

3. Utilize commercially available Fire/EMS Deployment Analysis software to conduct the deployment analyses.

4. Include in the study a recommendation on implementing a Medical Priority Dispatch System (MPDS), based upon national standards, to reduce the number and types of units dispatched to medical emergencies. Show deployment model(s) of a fully implemented MPDS approach as compared to the current system.

5. Review to further refine the proposed Sanford/Millican Plan, including the number and types of units assigned to each station including ALS Engines, Rescue Units (24/7 transport units) and Peak Rescue Units. Review the percentile response times (both First Response and Transport) projected within each of the Fire/EMS Districts. Recommend alternative deployment options, if indicated, to achieve optimal efficiency with (a) a minimum seven minutes and 30 seconds (7:30) response time, within each Fire/EMS District, to 90% of emergency calls for First Response, (b) meeting the current response time performance within each Fire/EMS District. Further, for transport units meet the following response time standards at a minimum: ten minutes (10:00) to 90% of emergency calls; twenty minutes (20:00) to 90% of downgraded emergency calls and sixty minutes (60:00) to 90% of interfacility and non-emergency transports.

6. Evaluate and document the anticipated workload on ALS Engines, Rescue Units (24/7 transport units) and Peak Rescue Units to ensure personnel workloads are safe and effective.

7. Ensure the re-use of existing Rescue Units as transport units is evaluated to ensure appropriate level of service and workload for the replacement ALS First Responder Unit and the workload and performance of the Rescue Units for all three missions (Fire, ALS First Response and Transport) is evaluated.

Attachment I
Cross Reference RFP Scope to Report Contents

SECTION E – SCOPE OF WORK

8. Evaluate and document the level of Pinellas County's ALS First Response, Fire Protection and Transport readiness and performance following the implementation of the deployment model. Evaluate and document the potential positive or negative impact on each Fire/EMS District's Insurance Services Office (ISO) rating.

9. Contractor will convert the resultant deployment models into a detailed operational and human resource plan.

10. Provide presentation quality color coded map images capable of displaying anticipated performance (thematic maps) from countywide, district level and response zone views. Provide all input and resultant data files from the commercial analysis software for the County's future use.

11. Evaluate and document existing capital equipment assets and develop a complete capital equipment plan to include frontline Rescue Units to meet a 130% peak deployment standard for fleet size, all necessary EKG equipment, hydraulic stretchers, mobile data and radio communications equipment, and any other capital equipment needed to operate existing and new Rescue Units for transport duty. Utilize a five (5) year frontline use and five (5) year reserve use "safe useful life" or specify an alternate plan. Capital plan needs to include specialty transport, supervisory and support vehicles. Capital plan needs to include all necessary computer networking, hardware, and software to provide all services specified.

12. Prepare an operational budget to include fuel, fleet repair and maintenance, uniforms, supplies and equipment and all other operational costs of operating a multi-jurisdictional fire based EMS system. Such components will be assessed to maintain all currently provided services and functions at the respective current service delivery levels.

13. Other costs shall be considered and include, but not be limited to, accounting, human resources, legal support, insurance, indemnification, and any other indirect costs. The existing resources within the fire departments will be considered when integrating the transport function.

14. Evaluate and document the implications of the governance structure on Ambulance billing, patient business services, Medicare compliance, and HIPAA compliance based upon a single licensed provider and multiple licensed provider approach.

15. Ensure all plans and analysis include the following components governance structure, administration/management, field supervision and coordination, all support services such as dispatch, patient business services, training/education, safety/risk, information technology management and support, materials management, scheduling, fleet management, etc. and compare to other multi-jurisdictional fire based EMS transport systems.

16. Ensure all plans and analysis account for all services to include ALS First Responder Services and ALS Emergency and Non-Emergency Transport, Critical Care Transport, Mental Health Transport, All Children's Hospital Transport Team, and Tactical EMS Services.

17. For each category of transport of specialty services provided (9-1-1/Emergency, Non-Emergency, Interfacility, Critical Care, Mental Health, Critical Care, All Children's Transport Team and Tactical EMS Service), evaluate the individual revenue stream and individual program cost.

3- Presentations and Reports:

1. Consultant shall provide a written draft final report and present preliminary findings at an EMS Committee meeting to be scheduled.

2. Consultant shall provide a written final report and present findings at an EMS Committee meeting to be scheduled.

3. Consultant shall provide a written final report and present findings at an EMS Authority meeting to be scheduled.

4. Additional meetings as requested by the EMS Authority and/or the EMS Committee.

ATTACHMENT J

Comments on Draft Report and Clarifications Completed

FITCH
& ASSOCIATES

Attachment J

Comments On Draft Report and Clarifications Completed

Number	Page	Importance	DRAFT Report Review Comments	Resolution
1	2	1	Needs to clearly say that this analysis was based upon FY10-11 as a snapshot in time to compare the cost of the various models and proposals	Language changed to reflect comment.
2	2	1	Needs to say that the study design was to assess various models and proposals and not to address the fiscal sustainability of the EMS System. To that end, the report serves as a starting point for the County to begin discussing fiscal sustainability with the Cities and Fire Districts.	Language changed to reflect comment.
3	2	2	The cost of the existing system isn't shown until Page 7, which makes earlier model summaries difficult to understand.	Language changed to reflect comment.
4	7	1	Not clear that the "model crew costs" includes Fire Protection by the Cities and Fire Districts. Actual EMS Funding is much less. May be worth a short definition.	Language changed to reflect comment.
5	10	1	Expand discussion of hybrid	Language changed to reflect comment.
6	22	3	Figure 2 needs a legend or clarification of the numbers in each zone	Language changed to reflect comment.
7	24	3	Figure 3 needs a legend or tie description to figure	No change was made as lead in, title and sentence after the Figure describe.
8	25	1	Table 6 needs a footnote stating the clarification about the contract performance is on Page 30.	Language changed to reflect comment.
9	26	1	Table 7 needs a footnote stating the clarification about the contract performance is on Page 30.	Language changed to reflect comment.
10	32	1	Clarify Methodology	Language changed to reflect comment.
11	36	3	Table 19 South Pasadena Rescue removed, but, no shown as gray	Language changed to reflect comment.
12	40	3	Table 21 - Variance noted as significant, but, no explanation of the 1.26%.	Language changed to reflect comment.

Attachment J

Comments On Draft Report and Clarifications Completed

Number	Page	Importance	DRAFT Report Review Comments	Resolution
13	43	3	3XSUV is unclear	Language changed to reflect comment.
14	44	3	Figure 4 Hour of Day labels are fuzzy	Could not change image.
15	45	3	Table 29 - Fill in the blanks	Language changed to reflect comment.
16	46	3	Top of the page refers to "Echo calls" but Table 30 lists out Echo, Delta, Charlie, NA	No change made. Text is clear: "Echo consists of All ProQA determinant Echo, Charlie, Delta Calls
17	49	3	Text shows 1,195,492 vs. Table shows 1,199,086	Language changed to reflect comment.
18	55	3	No support for statement	Language changed to reflect comment. SAME AS #22.
19	55	3	Tables 40 and 41 - May be useful to reinforce that Response Time is faster due to more units and reduced workload	Language changed to reflect comment.
20	58	3	Note EMS does not pay for S33, S65 or T69. Also S38 and S29 are funded as 1 Position	No change made. The report does not address units funded but rather crew costs and units needed to make Response Times in the various simulations.
21	60	1	Tables 48 and 49 - CARES doesn't meet current County standards and worse than historic performance?	Language changed to reflect comment. Addressed in significance section
22	62	3	Table 51 - "statistical significance" and insignificance is cited in many places without justification or criteria	Language changed to reflect comment. SAME AS #18.
23	63	1	“Presence of an ambulance on-site encourages patients to requires transport” was not substantiated – it is pure speculation.	Language changed to reflect comment. Additional text added to clarify that this is the consultants’ opinion based on experience.
24	63	2	Paragraph 2 - There is no downgrade response time requirement for ALSFR. It isn't appropriate to use the emergency response time requirement.	Language changed to reflect comment.
25	63	1	8,000 fewer transports was not substantiated. County does not contract with insurers, so the assumption about billing impact may not be correct.	Language changed to reflect comment. Additional text added to clarify that this is the consultants’ opinion based on experience.

Attachment J

Comments On Draft Report and Clarifications Completed

Number	Page	Importance	DRAFT Report Review Comments	Resolution
26	64	2	#2 - explain based upon current data	No change made. In Winnipeg, CA being performed by Winnipeg fire service both transports and fire 1st response; they noticed an improved community involvement by allowing Fire First Responses to handle low acuity calls
27	64	2	#3 - BLS could be utilized. Unclear that the consultant is only recommending "implementable solutions"	No change made. While there are experiments using BLS for community paramedicine programs, the consensus remains today remains that ALS is more appropriate.
28	64	2	Last #3 - Accountable Care statement was unsubstantiated	No change made. This is the opinion of the consultant based on our experience and knowledge base.
29	67	3	Table 58 No Footnotes as indicated by the superscript number 1s.	Language changed to reflect comment.
30	67	3	Table 61 - is it Minutes? Hours?	Language changed to reflect comment.
31	71	1	Question from St. Pete Fire Rescue on Tables 64, 66 and 68 to understand methodology used. Dianne Wright contacting Chief Knight	E-mails confirm Chief was satisfied with explanation.
32	74	1	Note on 3-5% increase not quantified as dollars; showing dollars would be very powerful	No change made. Not practical to include as premium pay is often on base pay; we do not have that level of detail; text has been emphasized as to source of the comment by local Labor.
33	74	3	Table 68 - Table should be split up by Cost and Unit Hours; some Unit Hour entries have dollar signs or a zero following on a second line.	Language changed to reflect comment.
34	77	1	Table 71 #2 - add "some limitations due to current Special Act" and complexity would be a "3"	Language changed to reflect comment.
35	77	1	Table 71 #4 - Change to State Legislature and complexity would be a "3"	Language changed to reflect comment.
36	78	3	#1 - Federal/State agencies would need to be involved for Medicare/Medicaid	Language changed to reflect comment.

Attachment J

Comments On Draft Report and Clarifications Completed

Number	Page	Importance	DRAFT Report Review Comments	Resolution
37	78	3	#4 - County owns medical supplies that are on hand in the warehouse	Language changed to reflect comment.
38	78	3	#7 - No change in process for disciplinary actions from what we do today	Language changed to reflect comment.
39	80	1	5 Units identified in Paragraph 1, but, 19 Units described later	Language changed to reflect comment.
40	81	3	Last paragraph regarding PCEMS should be clarified to be the Ambulance Service only?	Language changed to reflect comment.
41	82		Fully loaded Unit Hour cost may be compared with Page 71 without understanding the additional services.	Language changed to reflect comment. Text and footnote added to clarify
42	82	1	Should be a foot note that these unit hour costs are "fully loaded" and include a list of services and program support costs	Language changed to reflect comment. Text and footnote added to clarify
43	84	1	Did not adequately address ISO	No change made. Disagree that this was part of scope; addressed issues in text to extent possible
44	85	1	Does not adequately assess ISO impact of the CARES model. Did not calculate Credit for Company Personnel (CCP) or get actual ISO PPC Points by Department.	No change made. Not part of scope; an ISO engineer would need to be employed and outcome is unknown
45	86	1	Paragraph 5- Did not say that reporting to a single Administrator would be practically impossible with separate union agreements, chain of command, legal entities, etc.	No change made. This will addressed in discussion and presentations.
46	All	1	St. Petersburg Beach is incorrect - the City's legal name is "St. Pete Beach". Search and replace throughout document	Language changed to reflect comment.
47	Att E	1	CARES – Adds some resources not currently funded – i.e. S27, S65 and T69. Maintains low volume R23 and R37 for 24 hours?	No change made. The Fitch report does not look at funding but rather puts into service those units needed to make response times; low volume rescues are needed to cover territory at the district level.

Attachment J

Comments On Draft Report and Clarifications Completed

Number	Page	Importance	DRAFT Report Review Comments	Resolution
48	Att F	1	How did we get to $6.1M savings?	No change made. Comparison tables show cost of each model compared to historic (simple subtraction). Added an attachment showing crew costs by district for each model.
49	Att A-F	1	BLS vs. ALS is confusing and hard to see bold vs. some other annotation	Language changed to reflect comment. underlined and added comment to footnote
50	Att E	1	Attachment "E" would E3 be ALS 24/7 or just 10 hours when R3 is out of service? (for example)	No change made. All units designated as 24 units remain either ALS or BLS for their entire 24 shift; this is noted in the text
51	Optima	1	Optima software does not go into "interactive mode"; need to determine if that is a contractual requirement.	Language changed to reflect comment.
			Note – The County posted the draft report with a timeline for comments to be received before June 17, 2013. Following the expiration of the comment period several additional comments were received and have been addressed to the extent possible within the timeframes established.	
52	Attach	1	Correction in equipment inventory received from Chief Keirn, Pinellas Park Fire re E 36 (BLS not ALS) and Squad 33/35 (BLS not ALS)	No change made. This request for correction was received after the report went to final production. The net change impacts only HIS-1 as other models deploy equipment as needed; Pinellas Park crew costs would be reduced (and HIS-1) by $99,180; This amount does not change the conclusions of the report.
53	3	1	Sunstar has 70 ambulances which excludes non-transport vehicles; correct text	Language changed to reflect comment.
54	44	1	Sunstar has 70 ambulances which excludes non-transport vehicles; correct text	Language changed to reflect comment.
55	9	1	Correct text from "non-profit" to "for-profit"	Language changed to reflect comment.
56	66	1	Table 57: do the total number of Sunstar Transports (134,790) in simulation reflect the removal of projected 8,000 transports on alpha calls?	No change made. The answer to the question raised was that the transport number does not reflect the removal of alpha calls.

Attachment J

Comments On Draft Report and Clarifications Completed

Number	Page	Importance	DRAFT Report Review Comments	Resolution
57	22	1	Figure 2 Map of calls by district; questions re the what is included in the calls	No change made. This was reviewed on the WebEx call that occurred on June 25, 2013.
58	35 & 40	1	Table 16 and Table 22 - questioned the numbers; they should cross-check	Edits made as needed
59	5	1	What is the source of reference to Chiefs recommending workload not to exceed 30%?	Footnote added to text; reference summary analysis of Fire/EMS Hybrid Proposal; notes maximum of 30% workload for 24 hour FFs and labor will seek 5% increase for FF on transport units
60	Ex Sum	1	Need to consider impact of reducing unit hours at night on fire suppression capability	Notation made that implementation team must pay attention to any negative impacts of reducing unit hours
61	Exec Sum	1	Consider amending the sentence regarding "unionized fixed schedules would eventually become part of the equation".	Amended to remove "unionized"; otherwise this is the opinion of the consultants based on experience
62	N/A	3	Consider including per capita information in the report.	No change made. Per Capita rates do not provide accurate or informative comparisons. The IBM Corporation in its landmark study of the San Jose, CA Fire Department (2012) indicated “The number of fire personnel deployed by large cities in the US (and therefore the amount of money they spend) varies enormously – there is no obvious explanation for this variation (i.e. per capita spending and staffing does not correlate with population density, geographic size, labor conditions, per capita income of other operational or demographic factors that we have tested for) [p 62]. Based upon Fitch’s experience, the same limitation exists in comparing per capita rates in Pinellas County.

Attachment J

Comments On Draft Report and Clarifications Completed