



TECHNICAL REPORT I

Alec Hanley
Construction Management
Advisor – Ray Sowers
Cardinal Wuerl North Catholic High School
Cranberry Township, PA
September 16th, 2013

Catholic Diocese of Pittsburgh



Cardinal Wuerl North
Catholic High School



Diocese Owner Rep/CFO
Mike Arnold



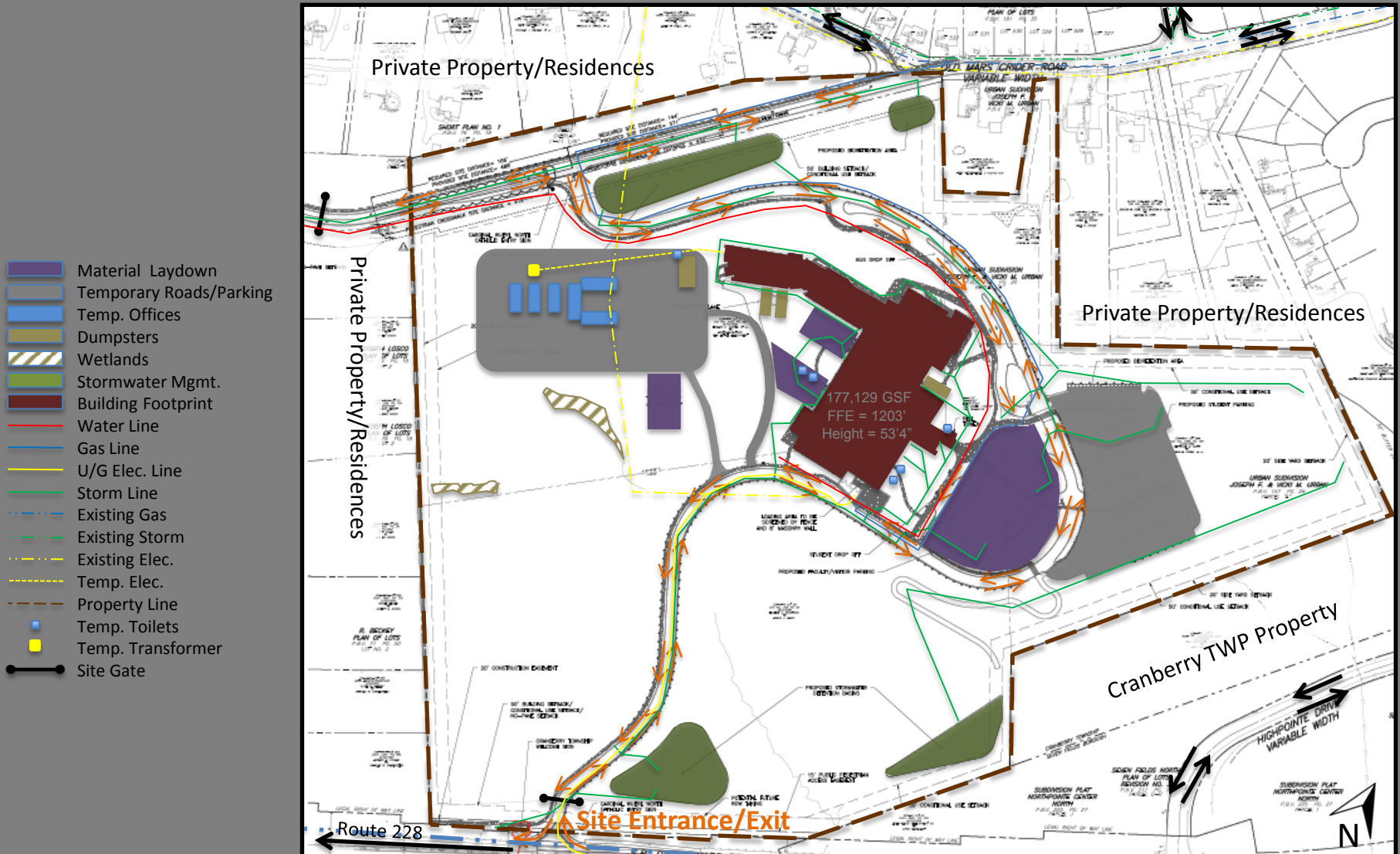
Catholic Diocese of
Pittsburgh



*Old school outdated
Population shift*



Site Plans & Local Conditions



Cardinal Wuerl North Catholic High School

Construction Site Plan

Alec Hanley
9/16/2013

CLIENT

EXISTING CONDITIONS

SYSTEMS

DELIVERY

STAFFING

SCHEDULE

COST

Construction & Structural Systems



Construction

- Design-Bid-Build
- Multiple Prime, GC Lead w/ CM Agency (GMP)
- BIM – preconstruction, as-built, facilities management model
- Area G 2nd Floor Core & Shell Package
- Extensive sitework – excavating & tree clearing
- Site/interior accessibility & material laydown/delivery changing throughout due to sitework
- Chapel design & construction late start
- Temp. excavation support needed for groundwater and redbed soil
- Demolition of existing house required

Structural

- Steel frame, cast-in-place concrete structure
- Extensive cast-in-place SOG conc. in most areas
- Composite Slab-on-deck in limited areas (2nd floor Areas A/F/G)
- W10, W12, and HSS10 columns prevalent
- Stairs cast-in-place in either form or pre-fab pan steel
- Shear walls used in staircases and elevator shafts as well as moment connections for bracing
- Brick veneer masonry common on building exterior

Mechanical & Lighting/Electrical Systems



Chilled Water Pumps (3-25HP)



Mech. Yard – 2 Chillers, Diesel Generator & Utility Transformer



Main Switch Board (3000A)

Mechanical

- 11-VAV Rooftop AHU's
- Split System ACs
- 2-Chillers (310 & 364 tons)
- 3-CHWP
- Natural Gas Heating
- Electric Unit/Baseboard Heaters

Fire Protection

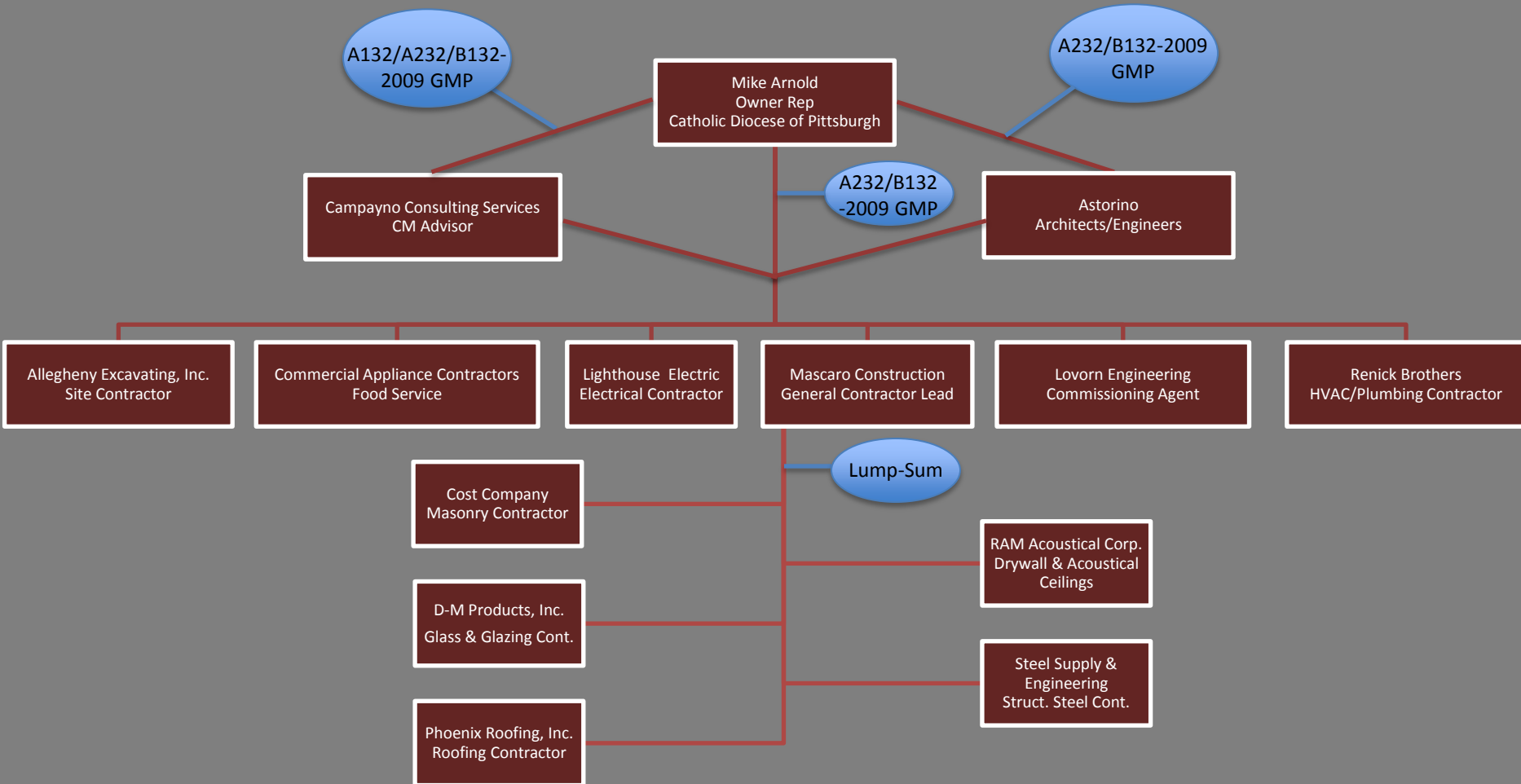
- Active system enters at southeast corner of CWNCHS

Electrical/Lighting

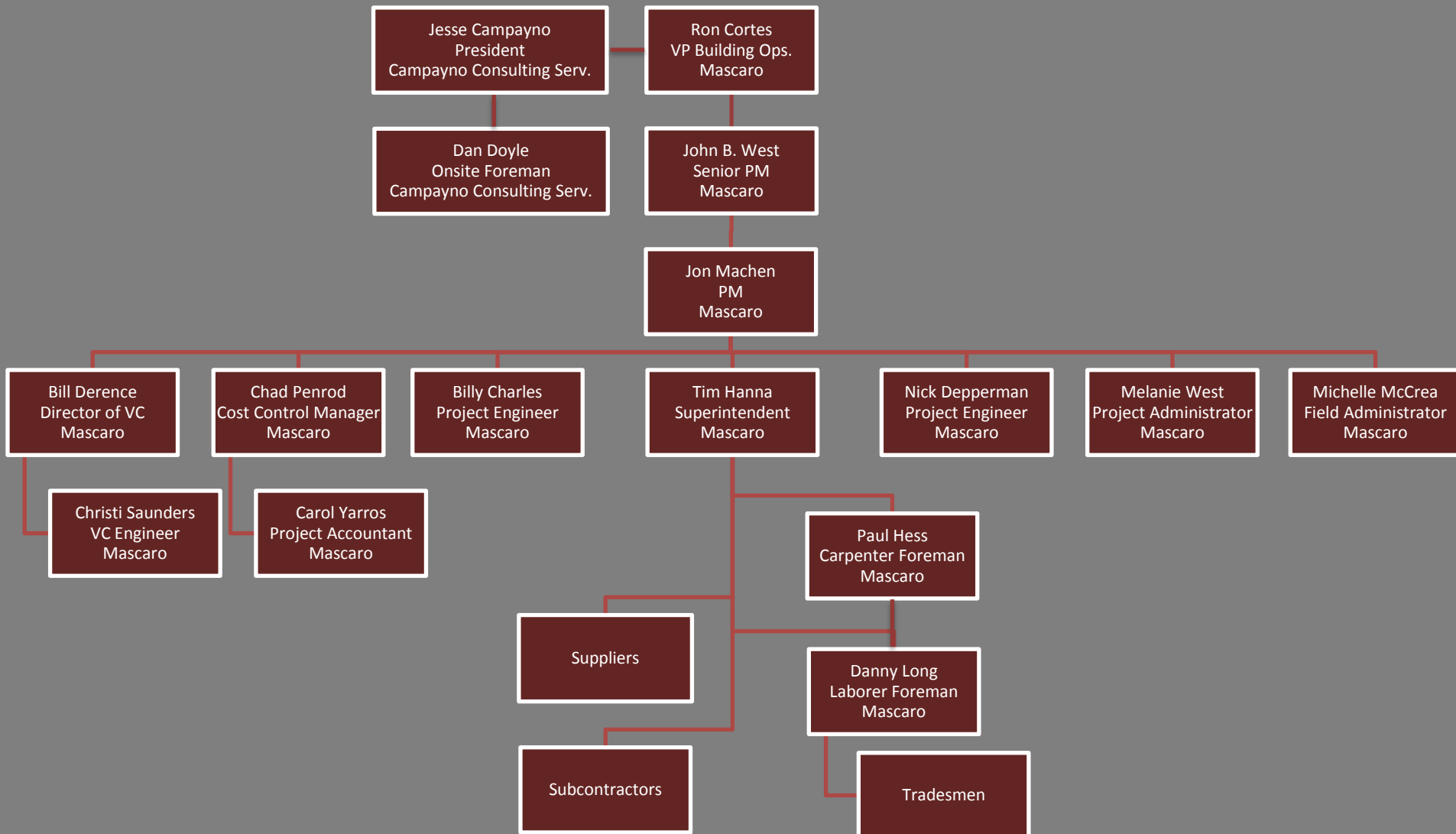
- Primary Service Transformer
- 3000A MSWB, 480/277V, 3 ϕ 4W
- Diesel generator for backup power
- 41-208/120V Panels
- 30-480/277V Panels
- Classrooms → Pendant Fluorescent Lighting
- Auditorium → 6" pendant LED downlight via dimming rack

Design-Bid-Build

Multiple Prime, General Contractor Lead w/ CM Agency



General Contractor & CM Agency Organizational Chart



Summary Schedule

Activity Name	Original Duration	Start	Finish	2012				2013				2014				2015		
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
CWNCHS2012 Cardinal Wuerl North Ca	509	04-Jun-12	30-May-14	30-May-14, CWNCHS2012 Cardinal Wuerl North Ca														
NTP - Start Sitework	0	04-Jun-12	04-Jun-12	NTP - Start Sitework														
Sitework/Install Deep Foundations	64	04-Jun-12	31-Aug-12	Sitework/Install Deep Foundations														
E/F/R/P - Footers	49	24-Sep-12*	30-Nov-12	E/F/R/P - Footers														
UG Drain/Elec/Plumb	57	01-Oct-12*	19-Dec-12	UG Drain/Elec/Plumb														
CMU Foundation Walls	33	16-Oct-12*	30-Nov-12	CMU Foundation Walls														
Prep & Pour SOG	195	09-Nov-12*	15-Aug-13	Prep & Pour SOG														
Erect Structural Steel	25	12-Nov-12*	17-Dec-12	Erect Structural Steel														
Deck & Detail Steel	44	15-Nov-12*	18-Jan-13	Deck & Detail Steel														
Prep & Pour SOD	57	05-Dec-12*	25-Feb-13	Prep & Pour SOD														
Install All Rooftop Rough Ins/MEP/Drainage Equipment	186	14-Jan-13*	03-Oct-13	Install All Rooftop Rough Ins/MEP/Drainage Equipment														
Install TPO/Standing Seam Metal Roofing	148	11-Feb-13*	09-Sep-13	Install TPO/Standing Seam Metal Roofing														
Install MEP Rough Ins	129	18-Feb-13*	19-Aug-13	Install MEP Rough Ins														
Install Exterior Studs/Framing	95	20-Feb-13*	03-Jul-13	Install Exterior Studs/Framing														
Interior Studs/GWB/Finishing	152	05-Mar-13*	07-Oct-13	Interior Studs/GWB/Finishing														
Exterior Spray-Applied Air Barrier	81	12-Apr-13*	06-Aug-13	Exterior Spray-Applied Air Barrier														
Exterior Brick Veneer Prep/Install/Cure/Wash-down/Remove	92	19-Apr-13*	28-Aug-13	Exterior Brick Veneer Prep/Install/Cure/Wash-down/Remove Scaffold														
Metal Panels/Soffit & Fascia/Coping & Precast Caps	96	06-May-13*	19-Sep-13	Metal Panels/Soffit & Fascia/Coping & Precast Caps														
Install Windows & Storefront	80	29-May-13*	19-Sep-13	Install Windows & Storefront														
Paint 1st Coat	69	09-Jul-13*	14-Oct-13	Paint 1st Coat														
Install GRD's/Final Connections	96	12-Jul-13*	25-Nov-13	Install GRD's/Final Connections														
Polish/Seal/Stain Concrete Finish & Carpet	106	23-Jul-13*	19-Dec-13	Polish/Seal/Stain Concrete Finish & Carpet														
NTP - Chapel Construction	0	12-Aug-13*	12-Aug-13	NTP - Chapel Construction														
Substantial Completion - Building Exterior	0	26-Sep-13*	26-Sep-13	Substantial Completion - Building Exterior														
HVAC Testing & Balancing	72	27-Sep-13*	08-Jan-14	HVAC Testing & Balancing														
Install Exterior Aluminum Doors & Frames	32	01-Nov-13*	17-Dec-13	Install Exterior Aluminum Doors & Frames														
Building Commissioning	49	22-Nov-13*	31-Jan-14	Building Commissioning														
Contractor Punchlist & Final Clean	47	25-Nov-13*	30-Jan-14	Contractor Punchlist & Final Clean														
Building Substantial Completion Phase 1 - A, B, D, E, F & G	0	30-Jan-14*	30-Jan-14	Building Substantial Completion Phase 1 - A, B, D, E, F & G														
Building Substantial Completion Phase 2 - C	0	30-May-14	30-May-14	Building Substantial Completion Phase 2 - C														

Building Costs & Estimate

Actual Building Costs for Cardinal Wuerl North Catholic High School		
	Construction Cost	Cost/SF
Actual Building Construction Costs (CC)	\$43,027,573.00	\$242.92
Total Project Cost (TC)	\$72,525,969.00	\$13.91
MEP/FP Systems Total Cost	\$8,860,010.00	\$49.99
Structural Systems Cost	\$6,017,485.00	\$33.97

Square Foot Estimate for Cardinal Wuerl North Catholic High School	
Gross Floor Area	177,129
Average Floor Height	20'1"
Perimeter	3,136'
Interpolated Construction Cost	\$162.92/SF
Perimeter Adjustment Cost	\$3.86/SF
Story Height Adjustment Cost	\$14.80/SF
Final CC/SF	\$181.58/SF
Additives	\$1,481,640
Final Total Cost	\$33,644,723.82