SCTE | STANDARDS

Energy Management Subcommittee

SCTE STANDARD

SCTE 229 2016 (R2022)

Operational Practice for Cable Facility Design Process

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☒ Procedure, Process or Method	☐ Cloud	☐ Customer Premises

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Note: This document is a reaffirmation of SCTE 229 2016. No substantive changes have been made to this document. Information components may have been updated such as the title page, NOTICE text, headers, and footers

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1. Introduction

1.1. Executive Summary

This Operational Practice for Cable Facility Design Process is intended to provide the reader with a comprehensive context in which to consider and decide on the design of a new cable facility and of a modification of an existing facility. Further, this OP describes a process of activities that, if followed, will allow the development of a design that optimally addresses the following criteria:

1. Cable Operator's services to be supported and delivered to customers
2. Immediate and future accommodation of network elements
3. Physical size, electrical capacity, and cooling capacity
4. Geographic location
5. Type and cost of potential failure modes
6. Prevailing regulatory and code requirements
7. Capital and operating costs
8. Capital and operating budgets
9. Prevailing corporate policies

Implicit in the resulting design will be specific types and configurations of physical, electrical and mechanical infrastructure chosen to achieve a designated level of availability of such infrastructure to support delivery of services to customers. As such, this OP can be considered a companion to the SCTE Standard EMS-025, which specifies certain of the criteria noted above. As well, the resulting facility design will be characterized by its conformance to the SCTE Standard EMS-025.

This OP describes each criteria noted above in terms of specific activities comprising the process. Each activity is characterized as one or more questions about the facility which must be answered in order to realize an optimal design for the facility.

1.2. Scope

This document addresses the design of cable facilities that house inside plant equipment which is part of the network through which services are delivered to customers.

It is noted that a single building may include both technical and non-technical facilities. Non-technical facilities would include, for example, general office, warehouse, technical operations, and customer service counters. The Operational Practice for Cable Facility Design Process does not address the design on non-technical spaces, however the fundamental OP described in this document can be applied to non-technical spaces. And, for facilities that include both technical and non-technical facilities, the design of the entire facility is best conducted using the Operational Practice for Cable Facility Design Process, given that the technical facility component demands higher standards of design and construction, and is most immediately important to the delivery of services.

1.3. Benefits

Through the application of the Operational Practice for Cable Facility Design Process, the cable operator can best realize improved ability to remain competitive, particularly with respect to non-facilities-based service providers, by being able to deploy new and more attractive services/products to existing and new customers as a result of having well-designed, capable cable facilities in place that support, not hinder, the installation of network equipment in support of such services.

With respect to any given cable facility designed under this OP, the cable operator can expect to realize benefits:

- In the short-term (6-18 months), improved use of capital funding over as a result of:
  - a more efficient and effective design process
  - the optimization of capital costs, and
  - a more efficient facility construction and delivery.
- Over the long-term (18 months to 10 years), of:
  - higher facility availability
  - more control over facility expansion by virtue of planning at the outset for expansion
  - lower capital costs and shorter timeframes for expansion of cable facilities to meet demand (planned and un-planned)
  - improved energy efficiency, and
  - lower operating and maintenance costs.

1.4. Intended Audience

The primary intended audience for the OP is cable operator personnel having responsibility for inside plant network engineering and implementation, as well as cable operator personnel having responsibility for the construction and operation of cable facilities.

Secondarily, the intended audience includes any cable operator personnel having in interest in the design, construction, operation, and use of a cable facility. Such would include personnel in corporate and regional finance groups, technical operations groups, and groups responsible for products and services.

Finally, the intended audience also includes professionals outside of the cable operator who provide design, engineering, project management and other professional services to the cable operator with respect to cable facilities. Such professionals include licensed architects, professional engineers (e.g. electrical, mechanical, structural, civil), urban planners, and specialty consultants, all of whom are trained and skilled in the design and implementation of buildings and may, or may not, have immediate experience with the designing and implementing cable facilities for cable operators.

1.5. Areas for Further Investigation or to be Added in Future Versions

None at time of issue of this version of the OP

2. Normative References

The following documents contain provisions, which, through reference in this text, constitute provisions of this document. At the time of Subcommittee approval, the editions indicated were valid. All documents are subject to revision; and while parties to any agreement based on this document are encouraged to investigate the possibility of applying the most recent editions of the documents listed below, they are reminded that newer editions of those documents might not be compatible with the referenced version.

2.1. SCTE References

- No normative references are applicable.

2.2. Standards from Other Organizations

- No normative references are applicable.

2.3. Published Materials

- No normative references are applicable.

3. Informative References

The following documents might provide valuable information to the reader but are not required when complying with this document.

3.1. SCTE References

- SCTE 184 2015
- SCTE 226 2015

3.2. Standards from Other Organizations

- No informative references are applicable.

3.3. Published Materials

The American Institute of Architects (AIA), the Royal Architectural Institute of Canada (RAIC), and other such bodies around the world have developed, published and require their professional members to adhere to standards and codes of practice. Such standards and codes of practice are, by implication, part of the OP described in this document, because the OP calls for the engagement of licensed architects in the design process. For cable operator personnel, descriptions of the relevant standards and practices can be found on the websites noted below:

- AIA – www.aia.org, where Form B101–2007 (formerly B151–1997), Standard Form of Agreement Between Owner and Architect, can be found. This form can serves as the Agreement between the cable operation and the architect and, as such, provides an excellent description of the services provided by the architect, and the responsibilities of both the cable operator and the architect in the design process
- RAIC- www.raic.org, where Canadian Standard Form of Contract for Architectural Services – DOCUMENT SIX, 2006 Edition provides a similar resource.

4. Compliance Notation

shall	This word or the adjective "***required***" means that the item is an absolute requirement of this document.
shall not	This phrase means that the item is an absolute prohibition of this document.
forbidden	This word means the value specified shall never be used.
should	This word or the adjective "*recommended*" means that there may exist valid reasons in particular circumstances to ignore this item, but the full implications should be understood and the case carefully weighted before choosing a different course.
should not	This phrase means that there may exist valid reasons in particular circumstances when the listed behavior is acceptable or even useful, but the full implications should be understood and the case carefully weighed before implementing any behavior described with this label.
may	This word or the adjective "*optional*" means that this item is truly optional. One vendor may choose to include the item because a particular marketplace requires it or because it enhances the product, for example; another vendor may omit the same item.
deprecated	Use is permissible for legacy purposes only. Deprecated features may be removed from future versions of this document. Implementations should avoid use of deprecated features.

5. Abbreviations and Definitions

5.1. Abbreviations

AHJ	authority having jurisdiction
AIA	American Institute of Architects
BOM	bill of materials
CFO	chief financial officer
EAS	emergency alert system(s)
FCC	U.S. Federal Communication Commission
e.g.	for example (*exempli gratia)*
FAA	U.S. Federal Aviation Administration
GIS	geographic information system
i.e.	that is (*id est*)
ISP	inside plant
ISEDC	Innovation, Science and Economic Development Canada
MSO	multiple system operator
OEM	original equipment manufacturer(s)
OSP	outside plant
PEG	public, educational, and government services
RAIC	Royal Architectural Institute of Canada
SCTE	Society of Cable Telecommunications Engineers
SEC	U.S. Securities Exchange Commission
SLA	service level agreement
Tech Ops	technical operations
AIA	American Institute of Architects

6. Overview of Cable Facility Design Process

This OP is not a technical document, but a procedural publication. It describes a process that involves a number of parties, inside and outside the MSO, all of which have something to say about what any given cable facility *should* be as building, and how it *should* perform its role as a critical element of the service delivery network.

The process described herein applies to the design of a:

- New facility in a greenfield environment, and
- Modification to an existing facility.

The process is based on a number of fundamental factors that must be considered in the design of a cable facility. Some of these factors are almost completely within the control of the MSO while others are almost completely outside the MSO's control.

At the time of this writing, an increasingly important factor is the requirement to use energy as efficiently as possible in cable facilities in order to minimize energy costs. The cable industry is addressing this requirement under the SCTE Energy2020 Program, which comprises a number of initiatives that collectively span the whole of the cable industry. While not specifically part of the Energy2020 Program, The Cable Facility Design Process, when properly applied, will naturally lead to optimal energy efficiency of the finished cable facility.

Collectively, the fundamental factors make for a complex environment in which to accomplish the design effort, which, by definition, is:

- A constant negotiation amongst the parties and involved, and;
- A balancing of the demands (e.g. very high reliability) and constraints (e.g. limited capital budget) related to the facility design effort.

For every participant in the process, it is critical to know who the parties are, and what each is professionally qualified to speak about. Further, it is critical to have a solid basis of fact describing how the facility supports the business (i.e. the making of money) in order to negotiate successfully with all the parties.

The process is presented at very high level in order to afford the reader an understanding of broader context in which any facility design effort must exist. Naturally, the process will tend to be somewhat simplified with respect to smaller, less complex facilities, and will tend to be a more significant undertaking with respect to major facilities, such as Classes A and B.

With increased complexity comes a longer time frame for completing the design process. The time frame, just for design, not construction, can be as short as several months to as long as a few years. It is reasonable to expect that larger, more expensive facilities will be more complex and take longer to design. However, it is quite often the case that smaller, seemingly simpler facilities can be affected by conditions (e.g. zoning by-laws) that make the design process far more complex than would otherwise be expected, thus much more time consuming.

Regardless of anticipated overall complexity, each element of the design process can be a very complex effort. For any facility project, the design process can be successful only with the appropriate degree of participation of the necessary parties inside the cable operator and with the engagement of professional architects, engineers and planners.

The design process takes careful and thoughtful effort on the part of the cable operator and the design professionals which, in turn, takes time. The design process, even for a simpler facility, can require many months of time.

However, the design process necessarily includes obtaining approvals from Authorities Having Jurisdiction (AHJ), such authorities including government agencies responsible for land-use approval as well as by-law, building code, fire code, and electrical code enforcement. None of the Authorities Having Jurisdiction is inclined to do their work on any schedule other than their own, meaning that the design process can be practically stalled *should* there be complication in obtaining the necessary approvals.

Throughout the design process – especially when progress seems slow and frustrating - it is important to understand the fact that a facility will have a design life span of 5 to 25 years, during which it will be difficult to obtain time, money, resources to make substantive changes to the facility.

Thus, it is important to take the time at the outset to achieve a design that best meets both immediate and future needs, yields greater operational flexibility and speed of service deployment, while optimizing both capital and operations costs over the long-term.

7. The Cable Facility Design Process

The Cable Facility Design Process is depicted graphically in figure one, with the major elements of the process arranged roughly in chronological order from left to right. It is noted that the earlier activities in the process are essentially linear in their relationship to one another, while those later in the process are not linear, but are highly inter-related.

Also indicated in the Cable Facility Design Process graphic are the respective phases of a standard design process as defined by the Architectural Institute of America (AIA) and Royal Architectural Institute of Canada (RAIC). These are shown across the top of the graphic and are arranged to show the relative timing of the elements of the Cable Facility Design Process with the design phases of the standard AIA/RAIC process. It is important to understand the relationship between the Cable Facility Design Process and the AIA/RAIC process, because the AIA/RAIC process will, ultimately, govern the design of a cable facility and all of the design professionals involved will adhere to the AIA/RAIC process.

In this context, the Cable Facility Design Process can be considered to be fundamentally identical to the AIA/RAIC process, but with cable industry-specific activities being incorporated in order to be most effective for use by the cable industry.

In countries other than the United States and Canada, the relevant architectural association's practices and procedures would govern. Despite whatever variations there *may* in specific terminology amongst the published practices and procedures of the various architectural associations, all of them follow the same fundamental design process.

The graphical depiction of the Process in figure one, combined with the textual descriptions in the table following figure one, describes the individual activities in the Process, providing details as to the:

1. Value of the activity in terms of realizing an optimal design
2. Criteria to be considered (i.e. questions to be asked and answered)
3. Parties, both inside and outside of the MSO, involved
4. References, such as building codes, corporate planning documents, and professional practice guidelines, that inform the consideration of the criteria
5. Time required for each activity, and relative timing with respect to other activities.

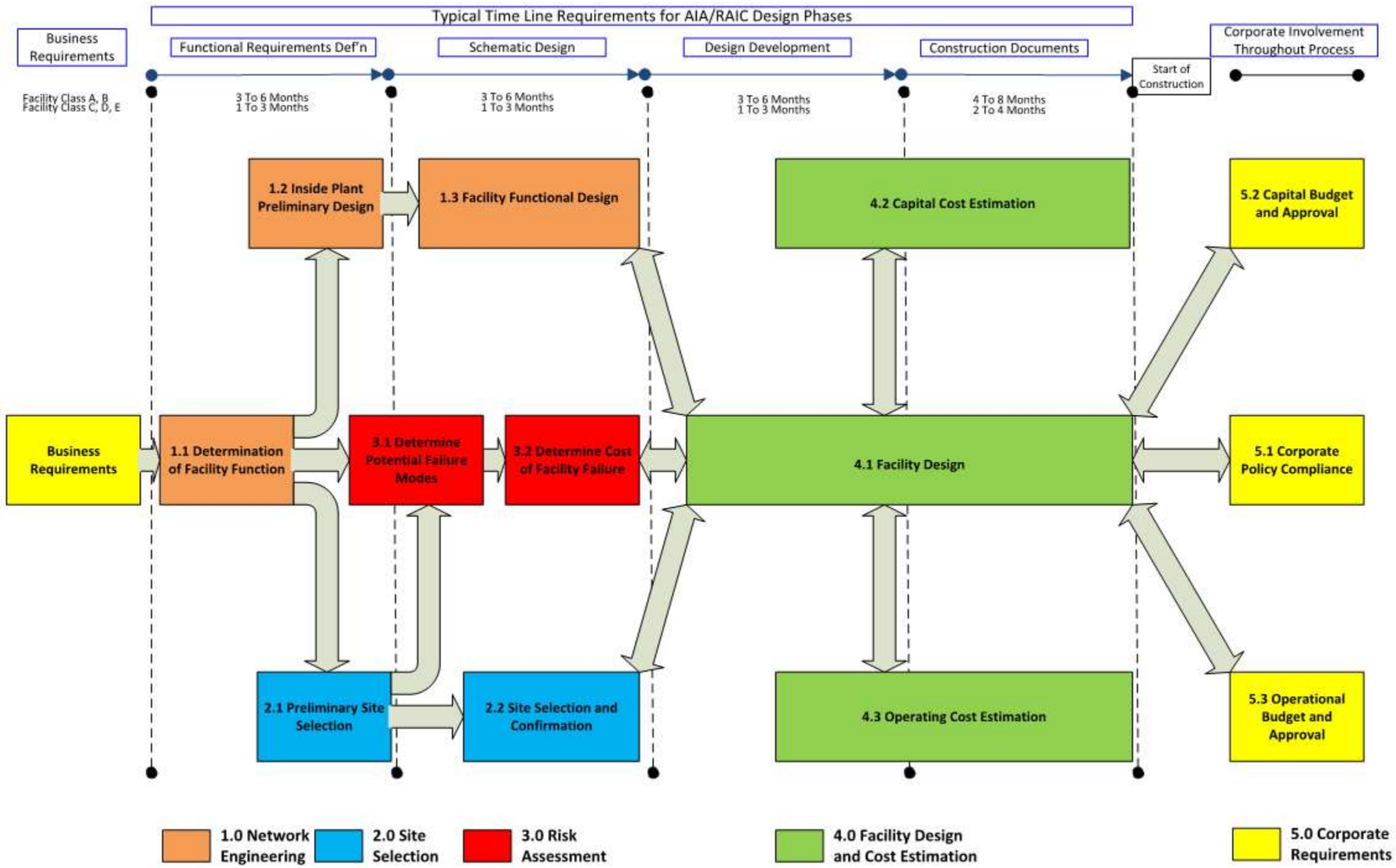

Figure 1 – Process Diagram

Table 1 – Process Diagram Detail Breakdown

Procedure Group	**1.0 - Network Engineering**
Activity Name	1.1 Determination of Facility Function
Objective/Purpose	• Identify all direct and indirect service delivery functions to be fulfilled or supported by the facility • In both immediate and future timeframes as indicated by business requirements
Responsible MSO Group	**References**
• Network engineering – local, corporate, or both	• Network architecture strategy • Network architecture design • Network architecture deployment plans
Involved MSO Groups	**References**
• Business units responsible for service lines	• Business plans describing current and future service offerings in terms of customer type and quantity, rate of service deployment/growth, general technical/marketing features of service offerings • Service level agreement (SLA) requirements for availability, restoration time, and penalties to cable operator for failure to meet requirements.
• Engineering groups responsible for service lines	• Engineering standards and guidelines specific to each service line
• Technical operations (Tech Ops) groups responsible for service lines	• Technical operations standards and guidelines specific to each service line
External Parties/Authorities Having Jurisdiction	**References**
• Franchise Authority	• Franchise agreement
Activities	**Results**
• Responsible cable operator group works with involved cable groups to fully characterize the functions supported, and to be delivered, by the facility	Statement of: • All service lines directly and indirectly supported by facility • Expected growth in service demand as would require additional existing or new functionality of facility

Procedure Group	**1.0 - Network Engineering**
Procedure Name	1.2 - Inside plant (ISP) preliminary design
Objective/Purpose	• Develop inside plant preliminary design sufficiently to define ISP equipment complement and equipment rack complement • In both immediate and future timeframes as indicated by business requirements
Responsible MSO Group	**References**
• Network Engineering – local, corporate, or both	• Energy 2020/corporate policy • Network architecture strategy • Network architecture design • Network architecture deployment plans • Inside plant design standards and guidelines • Manufacturers' product data sheets • Outside plant as-built data
Involved MSO Groups	**References**
• Engineering groups responsible for service lines	• Engineering standards and guidelines specific to each service line
• Tech Ops groups responsible for service lines	• Tech Ops standards and guidelines specific to each service line
External Parties/Authorities Having Jurisdiction	**References**
• Franchise Authorities	• Franchise agreements, particularly with respect to service delivery conditions therein, eg. EAS, PEG.
Activities	**Results**
• Responsible cable operator group develops inside plant design to sufficient level of detail to achieve required results	• Preliminary bill of materials (BOM) of ISP equipment to be accommodated in facility • Bill of materials to be complete with representative manufacturer and model number information • Equipment rack complement • Ideal physical layout of equipment racks

Procedure Group	**1.0 - Network Engineering**
Procedure Name	1.3 - Facility Functional Design
Objective/Purpose	• Develop facility functional design in terms of space, power and other requirements specific to ISP preliminary design • In both immediate and future timeframes as indicated by business requirements
Responsible MSO Group	**References**
• Network engineering – local, corporate, or both	• Technical facility design standards and guidelines • Facility as-built documentation (if applicable and available) • Capacity planning databases • Inside plant design standards and guidelines • ISP preliminary design • Manufacturers' product data sheets • Outside plant as-built data
Involved MSO Groups	**References**
• Engineering groups responsible for service lines	• Engineering standards and guidelines specific to each service line
• Tech Ops groups responsible for service lines	• Tech Ops standards and guidelines specific to each service line
External Parties/Authorities Having Jurisdiction	**References**
• None	• None
Activities	**Results**
• Responsible cable operator group develops facility functional design to sufficient level of detail to achieve required results	• Define requirements for space, power and cooling which with facility must fulfill • In both immediate and future timeframes as indicated by business requirements

Procedure Group	**2.0 - Site Selection**
Procedure Name	2.1 - Preliminary Site Selection
Objective/Purpose	• Identify preferred site(s) at which facility might be located
Responsible MSO Group	**References**
• Network engineering – local, corporate, or both	• Facility functional design • Network architecture design • Facility as-built documentation (if applicable and available) • Technical facility design standards and guidelines • Network GIS databases
Involved MSO Groups	**References**
• Corporate real estate	• Corporate real estate purchasing and leasing standards • Existing lease agreement (if applicable) • Existing purchase agreement (if applicable) • Local listings of available land and buildings
• Tech Ops – local, corporate, or both	• Tech Ops standards and guidelines • Local operational requirements
External Parties/Authorities Having Jurisdiction	**References**
• Architect, civil engineer, land use planner, land surveyor	• Existing site documentation (if applicable and available) • Third-party land base maps, e.g. topographic, flood-plane, seismic • Municipal/civic land base maps, e.g. zoning, property, civil infrastructure • Census data
• Civic authorities	• Land use policy and plans • Zoning by-laws
Activities	**Results**
• Network Engineering, working with other cable operator groups and external parties/AHJ, identifies preferred sites for facility and conducts initial evaluation as needed to qualify each site as a potential location of the cable facility, , based primarily on facility functional design and network architecture design	• Qualification of potential sites for facility • Management level discussion of characteristics of each potential site, ranking sites against facility functional requirements • Agreement on preferred site or sites

Procedure Group	**2.0 - Site Selection**
Procedure Name	2.2 - Site selection and confirmation
Objective/Purpose	• Identify site at which it is recommended Facility be located
Responsible Cable Operator Group	**References**
• Network Engineering – local, corporate, or both	• Preliminary site selection • Facility functional design • Network architecture design • Facility as-built documentation (if applicable and available) • Technical facility design standards and guidelines • Network GIS databases
Involved MSO Groups	**References**
• Corporate real estate	• Corporate real estate purchasing and leasing standards • Existing lease agreement (if applicable) • Existing purchase agreement (if applicable) • Local listings of available land and buildings
• Tech Ops – local, corporate, or both	• Tech Ops Standards and Guidelines • Local operational requirements
External Parties/Authorities Having Jurisdiction	**References**
• Architect, civil engineer, land use planner, code consultant	• Existing site documentation (if applicable and available) • FCC requirements • Building, fire, electrical codes • FAA requirements • Third-party land base maps, e.g. topographic, flood-plane, seismic • Municipal/civic land base maps, e.g. zoning, property, civil infrastructure
• Civic authorities	• Land use policy and plans • Zoning by-laws • Building, fire, electrical codes
Activities	**Results**
• Network engineering, working with other cable operator groups and external parties/AHJ, further evaluates each qualified site to decide whether or not it can be recommended as site for the cable facility, based primarily on facility functional design and network architecture design	• List of recommended sites for facility • Management level discussion of each recommended site, ranking sites in terms of compliance with site-specific conditions AND suitability to functional design requirements

Procedure Group	**3.0 - Risk Analysis**
Procedure Name	3.1 - Determine potential failure modes
Objective/Purpose	• Identify and characterize potential failure modes and causes thereof
Responsible MSO Groups	**References**
• Network engineering – local, corporate, or both • Corporate real estate	• Site selection and recommendation
Involved MSO Groups	**References**
• Tech Ops – local, corporate, or both	• Site selection and recommendation
External Parties/Authorities Having Jurisdiction	**References**
• Architect • Geotechnical, electrical, mechanical, structural engineers	• Existing site documentation (if applicable and available) • Building, fire, electrical codes • FAA requirements • Third-party land base maps, e.g. topographic, flood-plane, seismic • Municipal/civic land base maps, e.g. zoning, property, civil infrastructure
• Civil emergency management organizations	• Emergency preparedness and management plans
• Electricity service provider	• Service delivery SLA, historical availability, emergency preparedness and management plans
• Water service provider	• Service delivery SLA, historical availability, emergency preparedness and management plans
• Natural gas service provider	• Service delivery SLA, historical availability, emergency preparedness and management plans
• Municipal/civil engineering department	• Emergency preparedness and management plans • Coordination of service and construction activities
• Municipal/civil engineering department	• Emergency preparedness and management plans • Coordination of service and construction activities
Activities	**Results**
• Network engineering and corporate real estate, working with other cable operator groups and external parties/AHJ, identify and assess the impact of each of the possible failure modes of the site, eg. Flooding, loss of electrical service, earthquake	• List of potential failure modes and causes thereof • Management level discussion of each failure mode in terms of potential impact on service delivery

Procedure Group	**3.0 - Risk Analysis**
Procedure Name	3.2 - Determine cost of facility failure
Objective/Purpose	• Identify and estimate potential cost to MSO business of site failure modes
Responsible MSO Groups	**References**
• Network engineering – local, corporate, or both	• Potential failure modes • Inside plant inventory, design and cost records
Involved MSO Groups	**References**
• Senior Business Management – local, corporate, or both	• Potential failure modes • Billing records • Service Agreements • Franchise Agreements
• Tech Ops – local, corporate, or both	• Potential Failure Modes • Emergency Preparedness Plan
External Parties/Authorities Having Jurisdiction	**References**
• Architect • Geotechnical, electrical, mechanical, structural engineers	• Existing Site documentation (if applicable and available) • Construction means costing • Site-specific construction/restoration cost estimates
Activities	**Results**
• Network engineering and corporate real estate groups work other cable operator groups and external parties/AHJ to evaluate the cost to the cable operator of each potential site failure mode	• Management level discussion of each failure mode it's potential financial cost to the MSO in terms of lost revenue, fines and penalties, increased operating costs, replacement and restoration costs, and bad will generated in customer and public opinion

Procedure Group	**4.0 - Facility Design and Cost Estimation**
Procedure Name	4. 1 - Facility design
Objective/Purpose	• Develop design of facility, including all aspects of the site
Responsible MSO Groups	**References**
• Network Engineering – local, corporate, or both	• Technical facility design standards and guidelines – MSO, SCTE, general industry • ISP design for site
• Corporate Real Estate	• Corporate real estate design guidelines and Standards
Involved MSO Groups	**References**
• Tech Ops – local, corporate, or both	• Tech Ops policies and procedures
External Parties/Authorities Having Jurisdiction	**References**
• Architect • Civil, electrical, mechanical, structural engineers • Code consultant	• Existing site documentation (if applicable and available) • Requirements defined by network engineering • Requirements defined by corporate real estate • Requirements defined by Tech Ops • Site failure cost analysis • Site specific regulatory and code requirements • Construction cost estimates • Available capital budget • Operating cost estimates • Available operating budget • Corporate environmental sustainability policies • AIA or RAIC professional practice standards, guidelines and procedures
Activities	**Results**
• Architect and engineers develop design according to all identified references	• Design for cable facility that best satisfies all of the requirements of the site, and respects all of constraints and conditions imposed on the Site • Design drawings and specifications suitable for issuing to qualified construction contractors for bidding

Procedure Group	**4.0 - Facility Design and Cost Estimation**
Procedure Name	4.2 - Capital cost estimation
Objective/Purpose	• Develop estimate of capital cost of site
Responsible MSO Groups	**References**
• Corporate real estate	• Historical costing references • Prevailing master service and Procurement agreements
• Network Engineering – local, corporate, or both	• Historical costing references • Prevailing master service and procurement agreements
Involved MSO Groups	**References**
• N/A	• N/A
External Parties/Authorities Having Jurisdiction	**References**
• Architect • Civil, electrical, mechanical, structural engineers • Cost consultant • Construction general contractor • OEMs and vendors	• Site design • Construction means costs • Local market costing data • Contractor bid pricing • OEM and vendor pricing
Activities	**Results**
• External parties develop capital cost estimate for agreed site design based on available references • Note that this is an iterative step in the site design and cost estimation group and, as such, will be closely coupled with the site design procedure and the operational cost estimation procedure	• An agreed capital cost estimate that comprises all capital costs, all soft costs related directly to construction activities, and a contingency allowance commensurate with degree of likelihood of cost variation during construction

Procedure Group	**4.0 - Facility Design and Cost Estimation**
Procedure Name	4.3 - Operational cost estimation
Objective/Purpose	• Develop estimate of operational cost of site
Responsible MSO Groups	**References**
• Corporate real estate	• Historical costing references • Prevailing master service and procurement agreements
• Tech Ops – local, corporate, or both	• Historical costing references • Prevailing master service and procurement agreements
Involved MSO Groups	**References**
• Network Engineering – local, corporate, or both	• Historical costing references • Prevailing master service and procurement agreements
External Parties/Authorities Having Jurisdiction	**References**
• OEMs, vendors, • Facility maintenance contractors	• OEM and vendor pricing • Site Design and OEM maintenance requirements
Activities	**Results**
• Responsible MSO groups develop and agree on operational cost estimates • Note that this is an iterative step in the site design and cost estimation group and, as such, will be closely coupled with the site design procedure and the capital cost estimation procedure	• An operational cost estimates specific to the operation and maintenance of the site, including, but not limited to, utilities (power, gas, water), maintenance contracts, major replacements of Site elements over expected life of the Site (building envelope, electrical distribution, cooling plant) providing sufficient detail to allow input to design decisions such that capital costs and operational costs are considered simultaneously in the design procedure

Procedure Group	**5.0 - Corporate Requirements**
Procedure Name	5.1 - Corporate policy compliance
Objective/Purpose	• Determine applicable corporate policies and agree on compliance
Responsible MSO Groups	**References**
• Regulatory compliance group	• Franchise agreements • SEC requirements • FCC requirements
• Corporate real estate	• Real estate investment policies • State/civic investment inducement Programs
• Corporate network engineering	• SCTE energy management standards and procedures
Involved MSO Groups	**References**
• none	• none
External Parties/Authorities Having Jurisdiction	**References**
• FCC/ISEDC • SEC	• Relevant regulations, orders and policies • Relevant regulations, orders and policies
Activities	**Results**
• Responsible MSO groups identify and agree on applicability of corporate policies to site • Note that this is an iterative step with respect to the site design and cost estimation group and, as such, tends to be closely coupled with the site design procedure and the capital cost estimation procedure • Note that this is an iterative step within respect to the corporate requirements procedure group and, as such, will be closely coupled with the corporate policy procedure and the available operating budget procedure	• Agreement on application of corporate policies (eg. energy conservation, community engagement, health and safety) to design of site, recognizing and accepting the effect of such policies on capital and operational costs of site

Procedure Group	**5.0 - Corporate Requirements**
Procedure Name	5.2 - Capital budget and approval
Objective/Purpose	• Determine capital budget availability and obtain approval of expenditure
Responsible MSO Groups	**References**
• CFO	• Approved corporate capital budgets
• Corporate real estate	• Approved corporate capital facility budgets
• Network engineering – local, corporate, or both	• Approved corporate capital facility budgets
Involved MSO Groups	**References**
• Business units responsible for service lines	• Approved capital budgets
External Parties/Authorities Having Jurisdiction	**References**
• None	• None
Activities	**Results**
• Responsible MSO groups negotiate and agree on capital budget availability and establish approval for expenditure • Note that this is typically an iterative step with respect to the site design and cost estimation group and, as such, tends to be closely coupled with the site design procedure and the capital cost estimation procedure • Note that this is an iterative step within respect to the corporate requirements procedure group and, as such, will be closely coupled with the corporate policy procedure and the available operating budget procedure	• Agreed capital budget and approval to make expenditures against that budget

Procedure Group	**5.0 - Corporate Requirements**
Procedure Name	5.3 - Operational budget and approval
Objective/Purpose	• Determine operational budget availability and obtain approval of expenditure
Responsible MSO Groups	**References**
• CFO	• Approved corporate operational budgets
• Corporate real estate	• Approved corporate facility operational budgets
• Network engineering – local, corporate, or both	• Approved corporate facility operational budgets
Involved MSO Groups	**References**
• None	• None
External Parties/Authorities Having Jurisdiction	**References**
• None	• None
Activities	**Results**
• Responsible MSO groups negotiate and agree on operational budget availability and establish approval for expenditure • Note that this is an iterative step with respect to the site design and cost estimation group and, as such, tends to be closely coupled with the site design procedure and the operational cost estimation procedure • Note that this is an iterative step within respect to the corporate requirements procedure group and, as such, will be closely coupled with the available capital budget procedure and the corporate policy compliance procedure	• Agreed operational budget and approval to make current expenditures and commitments of future expenditures against that budget

8. Conclusion

The Operational Practice for Cable Facility Design Process, as described in this document, provides the cable operator with a well-proven and widely-accepted methodology for efficiently executing the design of cable facilities that will, in turn, be cost effective to build and expand, energy efficient over their useful life, simpler to maintain and operate, and reliable according to the standards described in SCTE 226 2015.

The hiring of qualified professionals, all of which have been trained in the underlying discipline, is fundamental to this operational practice. The use of qualified professionals will allow the cable operator to most quickly and effectively respond to growing demand for services by customers, while most efficiently meeting the requirements of multiple internal groups and of the various external parties that have jurisdiction over the cable facility.

The initial application of this operational practice will certainly require effort and patience on the part of any individual and group not already familiar with its underlying discipline. However, the effort and patience invested will be rewarded in the form of cable facilities that provided measurably better operational performance in support of the cable operator’s lines of business.

