

# **STREETCAR REGULATIONS MANUAL**

**Department of Public Works**

**City of Kansas City, Missouri**

**October 2012**

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## **Preface**

This Streetcar Regulations Manual (“Manual”) for the City of Kansas City, Missouri (“City”) is intended to promulgate the technical criteria and details necessary for implementing the Streetcar provisions. This Manual is enacted in accordance with the provisions of Article XIV, Streetcars, Chapter 64 of the Code of Ordinances and it is intended to enact conditions to protect the public safety.

It is the intent of the Public Work Department (PWD) to keep this Manual current as to the latest materials, methods, and techniques that are acceptable for streetcar operations and track access permitting, and for any other changes or additions that may be made. The latest update will be noted on the face of the document. However, a permittee shall be ultimately responsible for ensuring that the current standards are being followed.

Copies of this Manual may be purchased from the Director of Public Works.

## **I. RECITALS, DEFINITIONS, AND DECLARATIONS:**

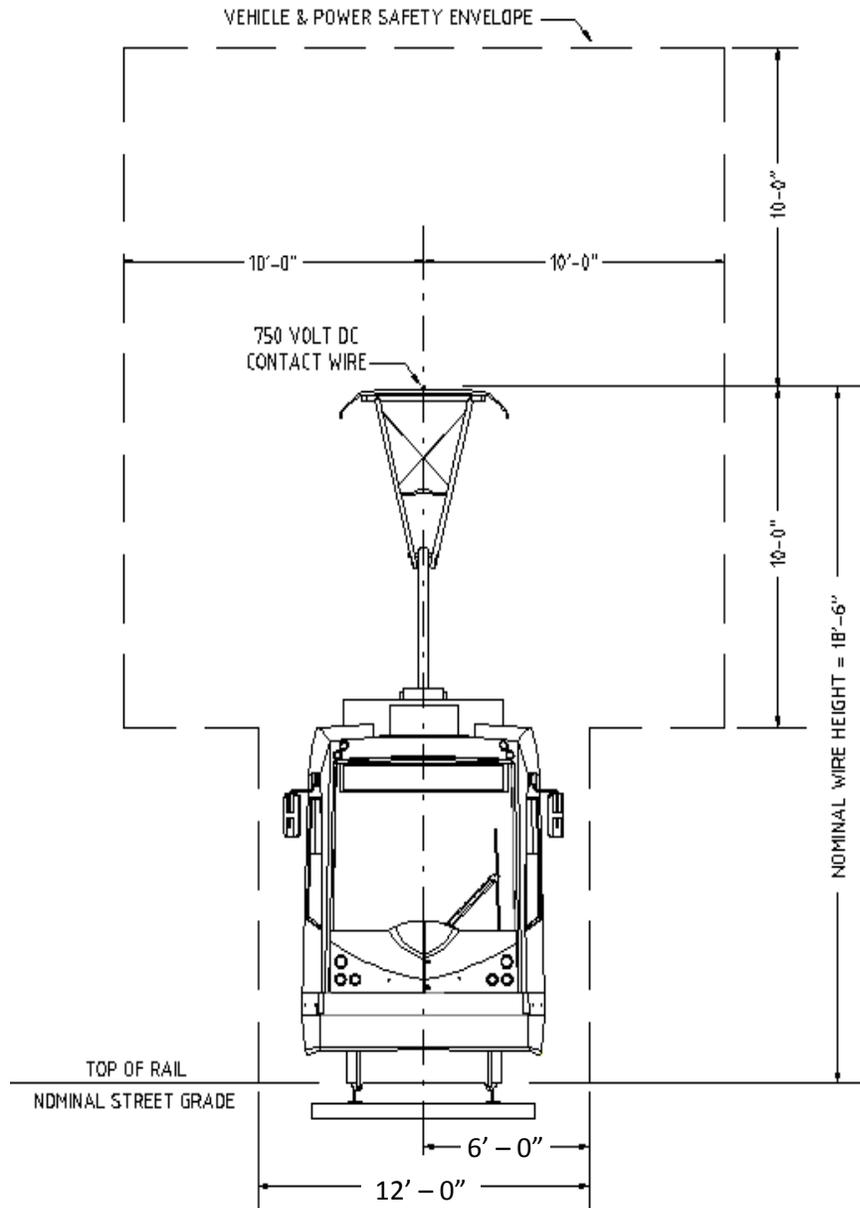
### **A. DEFINITIONS**

1. **EMERGENCY ACTIVITY** means circumstances requiring immediate construction or operations by a public service provider to prevent imminent damage or injury to the health or safety of any person or to the public right-of-way;
  2. **CONTROLLER** means any person in current responsible charge of the Streetcar arrival and departure scheduling and associated vehicular operations of the KC Streetcar Authority.
  3. **PERMITTEE** means the person applying for or receiving a permit to perform construction within the city's right-of-way under the terms and conditions of this article. The term includes:
    - (a) any officer, director, partner, manager, superintendent, or other authorized person exercising control over or on behalf of the permittee; and
    - (b) any contractor or subcontractor of the permittee, for purposes of compliance with this Manual, and the traffic control, construction, and maintenance requirements of this article.
  4. **PUBLIC SERVICE PROVIDER** means any wholesale or retail electric utility, gas utility, telecommunications company, cable company, water utility, storm water utility, or wastewater utility, regardless of whether the public service provider is publicly or privately owned or required to operate within the city pursuant to a franchise.
- B.** One streetcar system is currently authorized by the City and allowed to operate within the public right-of-way.
1. A modern streetcar system under the operation of the Kansas City Streetcar Authority.
  2. All streetcar systems operating within the City shall operate under the provisions of this Manual.
  3. Unless provided otherwise in this Manual, all terms used herein shall have the same meaning as set out in the provisions of Chapter 64, Article XIV, Streetcars.
- C.** All **PUBLIC SERVICE PROVIDERS** or other **PERMITEEs** under City Code, Chapter 64, Article XIV, Streetcars, operating within the City shall operate in accordance with the provisions of this Manual as enacted and amended by the Director.
- D.** **RIGHT OF WAY USERS** companies whose operations are not covered by this Manual and need to barricade a public right-of-way outside of the operations envelope shown in Figure One, but who are not engaging in construction or repair in the right of way, must obtain a traffic control permit and should refer to the regulations contained in the Engineering Standards and Specifications of the City of Kansas City and APWA-KCMO Section 2305, Maintenance of Traffic.
- E.** The City retains the right to approve routes of the Streetcars throughout the incorporated limits of the City and to approve, and if it determines necessary, modify the schedule of services for the Streetcars, including the time interval between Streetcars, expressed in minutes (headways).

- F. The Streetcars operate within automobile traffic lanes, on those streets designated by the City. Traffic lanes with streetcar tracks shall bear the additional requirements of the Track Access Permit system described in this Manual.
1. Track Access Permits apply to PERMITEEs's requiring temporary use of the track and traffic lane while conducting authorized and lawful business within the City.
  2. Any entities, other than PERMITEE's, such as construction companies not doing construction or repair in the public right-of-way or delivery service providers requiring temporary use of the track and traffic lane while conducting authorized and lawful businesses within the City, should refer to the Engineering Standards and Specifications of the City of Kansas City and APWA-KCMO Section 2305, Maintenance of Traffic, for relevant regulations and procedures.
- G. As of the effective date of this Manual, no utility facility (e.g. manhole, handhole, or appurtenance) will be permitted to be constructed with the near edge of excavation within six feet horizontally of the centerline of the streetcar track, nor within 24" vertically of the surface of the track rail and pavement slab. The angle of any facility crossing underground shall be as near to perpendicular as practicable. The Public Service Provider will be responsible for cathodic protection of their facility. A copy of the streetcar track alignment may be purchased from the City Engineer.

## **II. OPERATIONS AND TRACK ACCESS**

- A. "Revenue Service Hours" shall mean:
1. Monday through Thursday between the hours of 6:00 AM and 11:00 PM.
  2. Friday between the hours of 6:00 AM and 1:00 AM Saturday.
  3. Saturdays between the hours of 7:30 AM and 1:00 AM Sunday.
  4. Sundays between the hours of 7:30 AM and 10:00 PM.
- B. "Non-Revenue Service Hours" shall mean all hours except for revenue service hours and the one hour prior to the first revenue service hour of the day.
- C. Streetcar headways shall mean maintaining a minimum of 10 minute intervals between streetcars throughout all operating hours.
- D. Horizontal and vertical boundaries form an envelope around the overhead power contact wire and the vehicle. Any work to be undertaken within this envelope, during streetcar operations, must be performed under cautionary procedures described below. The boundaries are illustrated in Figure One – Vehicle and Power Envelope.



**FIGURE ONE – VEHICLE and POWER ENVELOPE**

E. Work Performed During Streetcar Non-Revenue Service Hours: When routine servicing and inspection activities, by authorized PERMITEES, are required, said company will be granted free and clear access during non-revenue service hours. Advance, 12 hour, notice must be made to the City of any operation to take place during these hours.

1. Routine servicing and inspection is defined to be those activities requiring approximately two hours and no more than four hours.
2. Track Access Permits are required.
3. All PERMITEES must be aware that although normal passenger service is not taking place during these hours, streetcars may still be operating (i.e.: testing and/or inspection of the streetcars, track and overhead power).

4. Safety procedures used during these hours shall be those as described under the Track Access Permit; and all procedures normally employed by the PERMITEE in compliance with all applicable City ordinances for in-street work.

5. If a streetcar power down is required for work during this period, it will be granted under the proviso that it must be restored at least 30 minutes prior to the beginning of Revenue Service.

F. Work Performed During Revenue Service Hours: By exception, routine servicing and inspection work will be permitted during streetcar revenue service hours, between the hours of 10:00 AM and 2:00 PM. The following provisions apply:

1. Advance 48 hour notice must be given for all work, except where regulatory deadlines imposed on PERMITEE's make this impractical. PERMITEE's shall note on their applications when regulatory deadlines require an expedited review of less than 48 hours, including the deadlines they are subject to, as well as the regulation setting out the deadline. The proposed activity to be undertaken by the PERMITEE need not constitute an Emergency Activity as defined in this Manual to qualify for an expedited review due to regulatory deadlines. Regardless of regulatory deadlines, PERMITEE shall submit applications at least 48 hours prior to the work beginning, when practical.

2. A Track Access Permit is required.

3. Power must remain on and streetcars remain in operation.

4. Exceptions are granted to perform routine work in daylight hours when routine work can be performed without unduly disrupting Streetcars service or when it can be shown that night time work may hinder personnel safety or have other detrimental effect.

5. Special precautions are required for in-street work during revenue service hours. Refer, *infra*, to Article III Track Access Permitting System: Article H - *Conditions of Work During Streetcars Operations*.

G. PERMITEE Urgent Un-Scheduled Maintenance: The PERMITEE shall work with the City to assure that streetcar disruption is minimized; and, should curtailment of the streetcar service be necessary, it is performed in an orderly fashion. Track Access procedures shall include:

1. In the event of an imminent threat need for Emergency Activity, the PERMITEE will make immediate notification to the City if streetcar service must be curtailed. Upon declaring the emergency, the City shall immediately dispatch all streetcars to hold at the next station. A streetcar supervisor will either power down the affected substation, or authorize the electric utility to take such steps.

2. If equipment is not in immediate danger of failure, but unscheduled critical maintenance or repairs are necessary, notification to the City, with a minimum one hour notice, and three hours preferred, shall be made. In any event, notification shall not be less than the time taken by the PERMITEE to route personnel and equipment to the affected area, once the condition is reported to the PERMITEE. Under this circumstance, the following steps are taken:

a) A streetcar supervisor will be immediately assigned to work with the PERMITEE; and to determine if train operation can continue under slow order, or if a system halt must be implemented.

- b) If a system halt is necessary, a streetcar supervisor shall coordinate location of all streetcars prior to a power down. Streetcars power down cannot strand Streetcars and passengers between stations. All Streetcars must be safely evacuated and secured.
- c) If outage duration warrants, a bus bridge will be built to maintain route service in the affected area.
- d) The PERMITEE will keep the Streetcar CONTROLLER informed of the progress of the work.

H. Major Maintenance Outages: It is recognized that periodically a PERMITEE may need to perform a maintenance activity of several hours / days duration. Such events shall be planned in advance between the PERMITEE and the City. In such events a partial curtailment of the streetcar operation may be required. A determination of the operating schedule of the streetcar, in any given line segment affected by a curtailment, will be made on a case by case basis.

I. Normal Streetcar Power Down Procedures:

1. Except in the case of a Life Threatening Emergency (see below), power shall only be removed from the streetcar system by an authorized streetcar employee. Critical Streetcars and passenger safety procedures must be implemented prior to power down.
2. Should a PERMITEE require power down to perform work within the 10 foot power envelope; a Track Access Permit shall be required. Note that power is not normally shutoff at the end of the revenue day. Therefore, power down during both revenue service and non-revenue service hours must be requested and permitted.
3. Normal power down of the Streetcars overhead contact wire is made by opening DC power switches located along the track alignment.
4. Normal power down should not be made by disconnecting the AC infeed power at the substation.

J. Emergency Shutdown For Life Threatening Situation:

1. In the event of a life threatening emergency, first responders on the scene may initiate an immediate shutdown of the streetcar power. A life threatening situation may be due to any number of causes. Where, in the judgment of personnel responding to an emergency, the need to remove power from the streetcar system is apparent, emergency shutdown procedures may be initiated with no advance notice to the City. Life threatening situations are typically a human in contact with the streetcar power, a human trapped in a vehicle by a downed wire, and other situations of like circumstance. The decision to shut down power to the Streetcars in such an emergency shall always rest with the judgment of the first responder.
2. First responder organizations include law enforcement, fire, rescue, and medical response units. All first responder organizations are encouraged to maintain supervisory level training, as described herein. The electric power utility company may be considered a first responder, and authorized to initiate emergency shutdown procedures, provided they maintain supervisory level training, as described herein.
3. The City must be informed while power down is in process, or immediately thereafter. First responders shall also be trained in follow-up assistance steps to assure streetcars, passengers, and auto traffic are not jeopardized.

4. It shall be recognized that unexpected halting of streetcars can result in undesirable consequences in matters of both passenger safety and traffic management. A life threatening emergency is not considered to be:

- a) Shutdown for convenience of a PERMITEE or governmental agency (i.e.: turning off power to maneuver a crane or other mobile equipment through the Vehicle and Power Envelope).
- b) A means of preventing a streetcar from traversing through an area under inspection or maintenance work, when proper track access permits have not been obtained.
- c) Any form of rush order to establish or restore utility service to a utility customer.

5. Nothing in this section entitled “Emergency Shutdown For Life Threatening Situation” is intended to dictate when a PERMITEE may be permitted access to their facilities for Emergency Activity. Instead, see the section above entitled “PERMITEE Urgent Un-Scheduled Maintenance.”

K. Other Regulations:

- 1. No posting of banners and signs, nor the running of ropes, wires, or cables shall be made through or within the power envelope.
- 2. Entry into all power and control manholes installed for the streetcar system shall be made only by streetcar authorized personnel.

**III. TRACK ACCESS PERMITTING SYSTEM**

- A. City will issue all Track Access Permits for Streetcars service lines located within the City’s public right-of-way. Permit forms are available at the KC Streetcar Authority operations office, or from the Streetcar website.
- B. Completed forms may be dropped off in person, or by telefax.
- C. Once reviewed by City, forms will be signed and returned to the PERMITEE either by telefax or email only.
- D. Work cannot commence in absence of a signed and completed Track Access Permit.
- E. Permits are processed on a daily basis.
  - 1. For revenue service hour work - permit requests received by noon, the City will endeavor to process the application within 48 hours.
  - 2. For non-revenue service hour work – permit requests received by noon, the City will endeavor to process the permit by close of business, same day.
- F. Any work of an extended nature (i.e.: major utility maintenance) will require advance long term planning with the City.
- G. Contractors within the public right-of-way not engaged in construction or repair or delivery agents delivering major equipment (e.g. setting equipment on roof tops with large cranes) must obtain a permit and should refer to the Engineering Standards and Specifications of the City of Kansas City and APWA-KCMO Section 2305, Maintenance of Traffic for relevant provisions regarding

standards of traffic maintenance, warning devices, flashers, and other traffic control devices for portions of the public right of way that include streetcar tracks.

H. Conditions of Work While Streetcars Are In Operation: Work will be allowed within the Vehicle and Power Envelope, during streetcar operations, if the following steps are taken:

1. A Track Access Permit has been issued for the work.
2. The PERMITEE must provide a trained watchman / flagger or use a watchman / flagger provided by KC Streetcar Authority at Permittee's cost, during all work performed through the duration of the Track Access Permit.
3. Prior to commencement of the work the Streetcar Duty Superintendant shall go over the flagging and safety rules with the PERMITEE supervisor. A designated safety area for personnel will be established for streetcar passage during the work period.
4. Brief stoppage of the streetcar to clear personnel will be accepted, not to exceed 5 minutes.
5. The Duty Superintendant shall issue a "Train Order" (proceed at slow speed through affected area) to all trains on the alignment during the work of the PERMITEE.
6. The watchman / flagger shall alert the PERMITEE personnel of the approaching train, and make visual contact with each train operator as they approach the work area. Once contact is assured between flagger and operator the train shall hold until the flagger has determined that all PERMITEE personnel, tools and equipment are safely located. The flagger then waves the train through the work area.
7. When the work has been completed, the PERMITEE will close-out the Track Access Permit with signature of the streetcar Duty Superintendant. The PERMITEE must vacate the work site and shall not return unannounced.
8. The Train Order shall not be released until the streetcar Duty Superintendant has determined that all PERMITEE personnel, tools, and vehicles have completed the work and left the track alignment.

I. Other Matters.

1. The streetcar operators shall provide the City a telephone call number for immediate communication with the Duty Superintendant on duty at the streetcar operations center.
2. The City (or its designate) shall furnish file copies of electrical diagrams and schematics when requested and appropriate to the needs of PERMITTEES and First Response Agencies.
3. The City (or its designate) shall provide track access training to all authorized PERMITTEES.

J. PERMITEE / Streetcar Operations.

1. All supervisory level personnel working within the Vehicle and Power Envelope shall have had track access training.
2. At the beginning of each work shift involving track access, trained supervisors of the PERMITEE shall instruct all members of the work crew in the track access rules and safety procedures.

3. When work requires two crews: an in-street work crew, and a work crew working in adjacent areas along the track (sidewalks or adjacent traffic lanes) the PERMITEE shall have at least one crew member in addition to the supervisor with track access training.
  4. When adjacent work is being performed, employees of PERMITTEES shall not enter the vehicle envelope, nor cross the envelope to bring materials and supplies to their work area, without the use of a flagger / watchman.
- K. Bucket trucks used within the power envelope shall be double insulated, and may be used with the overhead streetcar power on. Cranes and other mobile equipment, not specifically insulated for overhead electric line work, shall not be permitted to operate within the Vehicle and Power Envelope with the power on.
  - L. The PERMITEE supervisor shall have the Track Access Permit, in his/her possession, during all work requiring such permit.
  - M. When the work has been completed, the PERMITEE will close-out the Track Access Permit with signature of the Streetcar Duty Superintendent. The PERMITEE must vacate the work site and shall not return unannounced.
  - N. The Train Order shall not be released until the streetcar Duty Superintendent has determined that all PERMITEE personnel, tools, and vehicles have completed the work and left the track alignment.
  - O. A sample Track Access Form is attached.

Permit No.: \_\_\_\_\_  
Date Issued: \_\_\_\_\_

**KANSAS CITY STREET CAR ALIGNMENT--TRACK ACCESS PERMIT**

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**THIS SECTION COMPLETED BY REQUESTING PARTY**

**Dates of Access:** From: \_\_\_\_\_ To: \_\_\_\_\_ From: \_\_\_\_\_ To: \_\_\_\_\_

**Limits of Access: Main St.:** \_\_\_\_\_ **Time** From: \_\_\_\_\_ To: \_\_\_\_\_  
From: \_\_\_\_\_ To: \_\_\_\_\_ From: \_\_\_\_\_ To: \_\_\_\_\_  
From: \_\_\_\_\_ To: \_\_\_\_\_ From: \_\_\_\_\_ To: \_\_\_\_\_  
From: \_\_\_\_\_ To: \_\_\_\_\_ From: \_\_\_\_\_ To: \_\_\_\_\_

**Permit Holder:** \_\_\_\_\_ **Number of People:** \_\_\_\_\_

**Description of Work:** \_\_\_\_\_  
\_\_\_\_\_

**Facility Owner/Utility Company For Which the Work is Being Performed:** \_\_\_\_\_

**Power Down/Removal Requested:** Yes \_\_\_\_\_ No \_\_\_\_\_

**Equipment Required:** \_\_\_\_\_  
\_\_\_\_\_

**Requesting Party:** \_\_\_\_\_ Fax # \_\_\_\_\_ Date: \_\_\_\_\_

**CAUTION:** The overhead catenary electrical system must be considered **LIVE and HOT** at all times. **Electrical power must be confirmed in the field with the designated power personnel.**

**Special Operating Conditions:**

1. **Permits are good only for a maximum of 7 days.**
2. **Request for Right-of-Way access permit must be submitted by 12:00 p.m. (daily), 48 hours prior to the scheduled work.**
3. All personnel must wear orange-reflective safety vests or rain wear.
4. Advise Duty Superintendent when entering and leaving the alignment at # \_\_\_\_ - \_\_\_\_ - \_\_\_\_
5. Fax Permit to # \_\_\_\_ - \_\_\_\_ - \_\_\_\_

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**THIS SECTION COMPLETED BY KC STREETCAR**

Special Instructions: Yes \_\_\_\_\_ No \_\_\_\_\_ # \_\_\_\_\_  
Train Order: Yes \_\_\_\_\_ No \_\_\_\_\_ # \_\_\_\_\_  
Flags: Yes \_\_\_\_\_ No \_\_\_\_\_ # \_\_\_\_\_  
Flagger: Yes \_\_\_\_\_ No \_\_\_\_\_ # \_\_\_\_\_  
Manual Block: Yes \_\_\_\_\_ No \_\_\_\_\_ # \_\_\_\_\_  
Power Removal: Yes \_\_\_\_\_ No \_\_\_\_\_ # \_\_\_\_\_  
OCS: Yes \_\_\_\_\_ No \_\_\_\_\_ # \_\_\_\_\_  
Sub: Yes \_\_\_\_\_ No \_\_\_\_\_ # \_\_\_\_\_  
General Alignment: Yes \_\_\_\_\_ No \_\_\_\_\_ # \_\_\_\_\_  
Other: \_\_\_\_\_

Original: Superintendent  
Copies: Permit Holder  
Requesting Party  
Manager, Streetcar Maintenance  
KC Streetcar File

Request Approved: \_\_\_\_\_  
Manager, Streetcar Maintenance                      Manager, Streetcar Operations & Safety

#### **IV. STREETCAR CONSTRUCTION**

- A. Streetcar construction is defined as major civil, track, and/or overhead electrical work. It can be either new track installation, or the major removal and replacement / rebuild of existing systems.
  
- B. New streetcar systems will be constructed with certain protections to isolate the negative rail from ground potential. These steps provide adequate protection against DC stray current and corrosion for most underground structures and utilities. However, the determination of whether critical structures and utilities may require added protection is up to the PERMITEE, who may decide to provide for the additional corrosion protection.