CITY OF
PORTLAND
OFFICE OF
TRANSPORTATION

October 4, 2005

Regina S. McElroy, Director
Office of Transportation Operations
HOTO Room 3401
400 7th Street, S.W.
Washington, D.C. 20590

RE: City of Portland Request to Experiment with HAWK/Bike signal

Dear Ms. McElroy:

Enclosed is our request for FHWA to approve experimentation by the City of Portland, Oregon, with a HAWK/Bike signal. The City of Portland understands the responsibilities as a requestor for experimental use of new traffic control devices as outlined in the MUTCD.

We believe that the proposed HAWK/bike signal will improve mobility and safety for pedestrians and cyclists in crossing arterial streets. As we continue to stress multi-modal transportation systems, we need tools like this HAWK/bike signal to address pedestrian and bicycle crossing needs.

We discussed a draft of this proposal with Scott Wainwright last spring, although this submission has substantial changes from that draft. We will be happy to consider any changes recommended by FHWA.

Thank you in advance for your consideration.

Sincerely,

William C. Kloos, PE
Signals & St. Lighting Division Manager
City of Portland - Office of Transportation
503-823-5382

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Request to the Federal Highway Administration for Experimentation of Modified HAWK Signals for Pedestrian and Bicycle Crossings

By City of Portland, Oregon

October 4, 2005

200' from property line to property line) make this option more difficult. Also, many pedestrians will not take out of direction travel, even with our short block spacing. Many pedestrians will continue to cross at the intersection. Also motorists do not notice the mid-block signals as intersection signals since they don't have the visual intersection clues.

We need additional options for providing breaks in arterial traffic to provide pedestrian and bike access and safety.

Description of the Proposed Change

The proposed change would allow the use of the **H**igh-intensity **A**ctivated cross-**W**al**K** (HAWK) signal system similar to the design of the installations in Tucson, Arizona. The system has yellow and red indications for the main street. The side street will have a stop sign and pedestrian heads and push buttons for crossing the major street. In Portland we will also install bicycle indications for the minor street. This system allows the pedestrian or cyclist to cross busy arterials at minor streets, while not encouraging more vehicular traffic on minor local streets.

The City of Portland was initially considering pursuing experimental approval of the half-signal concept. The City of Portland has 48 legacy half-signal intersections. However, we think that the HAWK system is a better option since it does not display a green indication to arterial traffic and the vehicle heads are normally dark. The activation of the vehicle heads should provide additional warning to motorists regarding the changing state of the signal.

Proposed Display and Operation Requirements

Below is a picture of a HAWK installation in Tucson.

are activated, the main street stays solid red until the bike phase is cleared. However as noted above, we propose to just use the first sequence under all conditions.

Proposed Work Plan

The City of Portland proposes to install a new HAWK signal in Portland at the intersection of E Burnside and 41st. A draft plan of the proposed installation is attached (Attachment 3). This installation is being funded by an Oregon DOT ped/bike grant. The signal is scheduled to be installed in the summer of 2006. In addition the City of Portland will convert one of its existing 48 half-signals into HAWK signals in late 2006. That conversion will be a HAWK only without the bicycle heads.

Prior to activating the new HAWK signals, we will conduct a public information campaign, including contacting neighborhood associations and bike/ped advocacy groups.

Length of Experimentation

The experiment is proposed to last until the City of Portland has access to three-years of crash data after implementation, which could be up to 4.5 years after the implementation date.

Evaluation Plan

The City of Portland will collect and evaluate before and after crash data at the experimental installation and at the one converted half-signal. As noted above, we will have at least three years before data and three years of after data. In addition, the City will review the crash data at the existing 48 half-signals in Portland. The data will be analyzed for any trends or concerns related to red light running and rear end crashes on the main street. We will also look for errors made by side street motorists.

After the installation, we will collect 24 hours of time-lapse video to check for erratic activities during times of higher activity. Actions / conditions to be looked for include:

- Side street traffic turning over the cross walk does not always yield to the pedestrians.
- Main street traffic stopping at dark main street heads (driver assume power failure and 4-stop in place)
- Main street red light running

We are also committed to evaluate the following options:

- Whether to use a flashing yellow interval on the main street versus just a solid yellow.
- Whether to rest the ped head in DW or dark.

From the videotaping noted above, we will try to ascertain issues with red light running on the main street and pedestrian confusion on the side street.

We will install loops for traffic count information and will track how often the signal cycles. We will install stop bar loops to track main street red light running.

Other research efforts have also conducted studies of these HAWK signals. The current TTI

Attachment #1
Recommended HAWK - Bike signal sequence chart
City of Portland Experimental Request
Revised 10/4/05

Recommended Full Time Operation

				
Interval	Veh	Bike	Ped	Length (sec)
1	dark	dark	dark	rest
2	FY	R	DW	3
3	Y	R	DW	4
4	R	R	DW	2
4	R	G	W	8
5	R	Y	FDW	6
6	R	R	FDW	2
7	R	R	FDW	6
8	R	R	DW	3
9	R	R	DW	1
10	dark	dark	dark	rest

Notes:

1. As part of the experiment, the intersection operation will be tested with and without Interval #2.

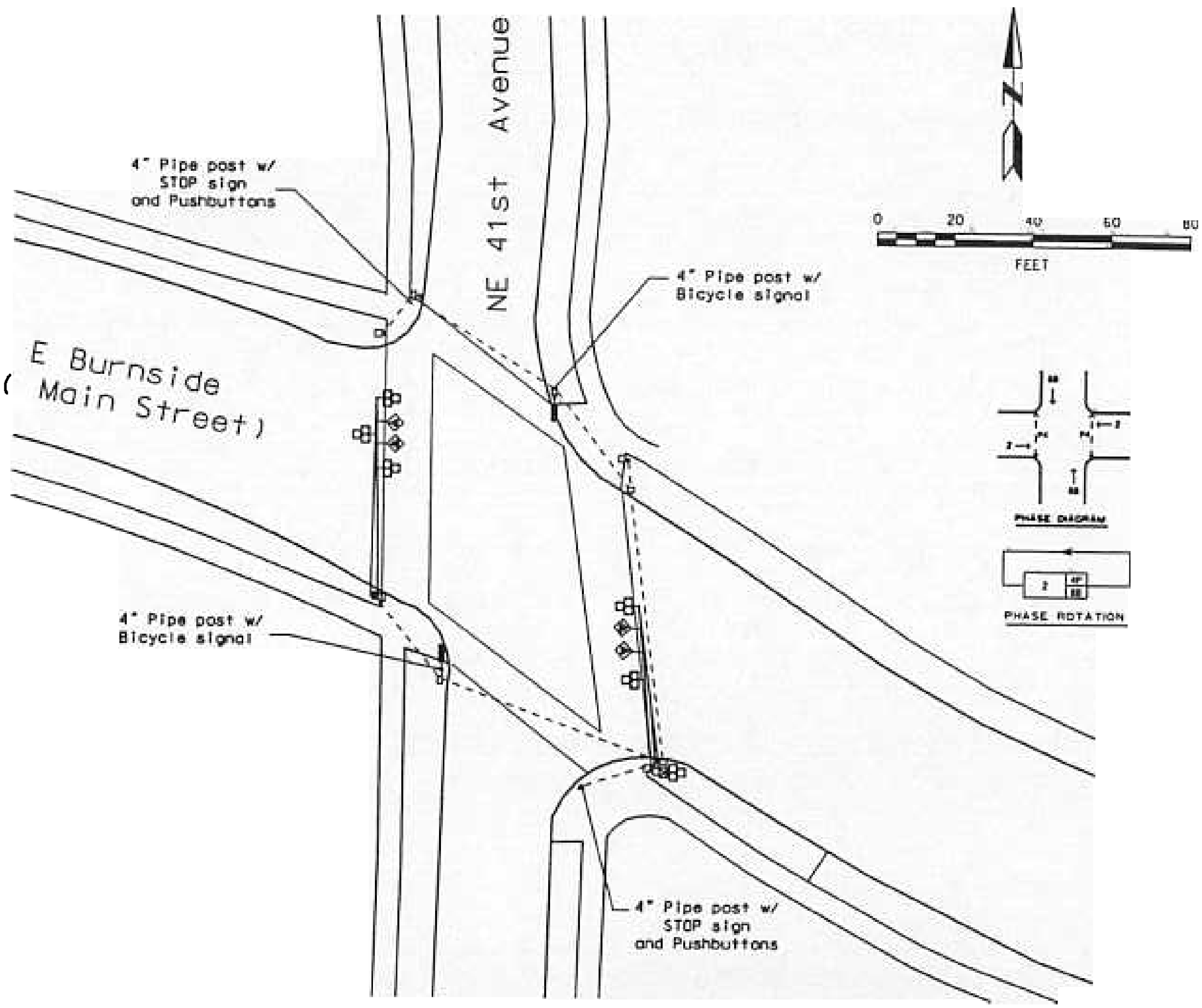
2. The rest condition for the pedestrian head will be tested both as dark and as solid don't walk.

Attachment #2
Alternate HAWK - Bike signal sequence charts
City of Portland Experimental Request
Revised 10/4/05

Operation **with only a bike** call



Interval	Veh	Bike	Ped	Length (s)
1	dark	dark	dark	rest
2	FY	R	DW	3
3	Y	R	DW	4
4	R	R	DW	2
5	R	G	DW	10
6	R	Y	DW	6
7	R	R	DW	2
8	dark	dark	dark	rest



REVISION	APPROVALS:	CITY OF PORTLAND OFFICE OF TRANSPORTATION	EXPERIMENTAL HAWK SIGNAL FOR PEDESTRIANS & BICYCLES	E Burnside & 41st Avenune
NO. / DATE / DESCRIPTION / APPR.	CITY ENGINEER / REG. PROF. ENGR. NO. 14,348	TOM POTTER / BRANT WILLIAMS, P.E.		FEDERAL HIGHWAY ADMINISTRATION: REGION 10 / OREGON DIVISION — PROJECT NUMBER — SHEET NO. TS-01

Plot Date: 10/03/2005